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This study details the behavioral changes noted in the Army Medical Department's (AMEDD) Gateway To Care (GTC) sites in response to capitation budgeting. Average Length of Stay, Case Mix Index, and the number of Outpatient Visits are examined in this study to determine what influences capitation has on these three variables. Results of the study indicate that Average Length of Stay has decreased, while Case Mix Index and number of Outpatient Visits have increased. This outcome is consistent with the trends resulting from the Prospective Payment System of Medicare, and trends of managed care in general.

The Conclusions drawn in this study will serve as a catalyst to support seeking "at risk" capitation budgeting methodology in the DOD Tri-care contracts being let throughout the Tri-care regions. Additionally, this project will provide feedback to the Medical Command and Medial Treatment Facility (MTF) commanders about what changes to expect when operating in a capitated environment.

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U.S. Army-Baylor University Graduate Program

in Health Care Administration

Capitation Budgeting and the 13 Gateway To Care Sites

(An Aggregate Look)

A Graduate Management Project

Submitted to the Faculty of Baylor University

in Partial Fulfillment

of the Requirements for the Degree of

Masters Of Health Care Administration

by

Bruce R. Reed

San Antonio, Texas

June 1995

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This study details the behavioral changes noted in the Army Medical Department's (AMEDD) Gateway to Care (GTC) sites in response to capitation budgeting. Average Length of Stay, Case Mix Index, and the number of Outpatient Visits are examined in this study to determine what influence capitation has on these three variables. Results of the study indicate that Average Length of Stay has decreased, while Case Mix Index and number of Outpatient Visits have increased. This outcome is consistent with the trends resulting from the Prospective Payment System of Medicare, and trends of managed care in general.

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

Figure

LIST OF TABLES

Table

LIST OF FACILITY ABBREVIATIONS BY LOCATION

Abbreviation	Facility Name	Location
HOOD	Darnall ACH	Fort Hood, TX
SILL	Reynolds ACH	Fort Sill, OK
EAMC	Dwight D. Eisenhower AMC	Fort Gordon, GA
BENNING	Martin ACH	Fort Benning, GA
CAMPBELL	Col. F. Blanchfield ACH	Fort Campbell, KY
CARSON	Evans ACH	Fort Carson, CO
LEAVENWORTH	Munson ACH	Fort Leavenworth, KS
RILEY	Irwin ACH	Fort Riley, KS
LEONARD WOOD	General Leonard Wood ACH	Fort Leonard Wood, MO
WEST POINT	Keller ACH	West Point, NY
BRAGG	Womack AMC	Fort Bragg, NC
DRUM	Guthrie AHC	Fort Drum, NY
BEAUMONT	William Beaumont AMC	Fort Bliss, TX

LIST OF ABBREVIATIONS

ACH	Army Community Hospital
AHC	Army Health Clinic
ALOS	Average Length of Stay
AMC	Army Medical Center
AMEDD	Army Medical Department
CAM	Catchment Area Management
CBO	Congressional Budget Office
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services
CONUS	Continental United States
CPBS	Cost Per Beneficiary Served
CRI	Champus Reform Initiative
DMIS	Defense Medical Information Systems
DOD	Department of Defense
DRG	Diagnostic Related Group
FI	Fiscal Intermediary
GAO	General Accounting Office
GNP	Gross National Product
GTC	Gateway to Care
HMO	Health Maintenance Organization
HSC	Health Services Command
MEDCOM	Medical Command

MEPRS	Medical Expense and Performance Reporting System
MTF	Medical Treatment Facility
PASBA	Patient Administration Systems Biostatistical Activity
PMPM	Per Member Per Month
PPO	Preferred Provider Organization
PPS	Prospective Payment System
PRIMUS	Primary Care for the Uniformed Services
PSRO	Professional Standards Review Organizations
RCMAS	Retrospective Case-Mix Analysis System
TPCP	Third Party Collection Program
U.K.	United Kingdom
UR	Utilization Review
U.S.	United States

CHAPTER 1

INTRODUCTION

Purpose of the Study

The purpose of this study is to determine if capitation budgeting has resulted in significant behavioral changes within our Medical Treatment Facilities (MTFs). This study will examine Average Lengths Of Stay (ALOS), Outpatient Visits (OPV), and Case Mix Index (CMI) for the original thirteen Gateway to Care (GTC) sites listed in Table 1. If these behavioral changes are consistent with changes desired by a managed care system encouraging cost containment, this study will serve to support capitation budgeting for all Department Of Defense (DOD) health care contracts.

Dwindling Resources

Health care reform is **DEAD**. This is the latest news concerning health care reform in the United States. Congress has been unable to agree upon a health care reform package to restrain the runaway health care expenditures in this country. I would argue however, that health care reform has been happening for some time. Health care reform is not some new phenomenon that has come about with the Clinton Administration.

Consumption of resources in the health care environment has increased for most of this century. Furthermore, waste and

abuse exists within the health care system, consuming these valuable resources with no return on investment.

Technology, an aging population, eradication of disease, and seeking treatment for every ailment, all contribute to the escalation of health care spending. In 1992, consumers, private insurers, and state and federal programs spent a record $800 billion on health care, spending that accounted for 14.7 percent of the Gross National Product (GNP) ("Noteworthy excerpts" 1993). Furthermore, this increased spending does not equate to a decline in mortality and morbidity rates as compared to nations spending lesser amounts of their GNP on health care.

In 1990, as seen in figure 1, the United States spent $2,566 per capita for health care, 43 percent more than the second
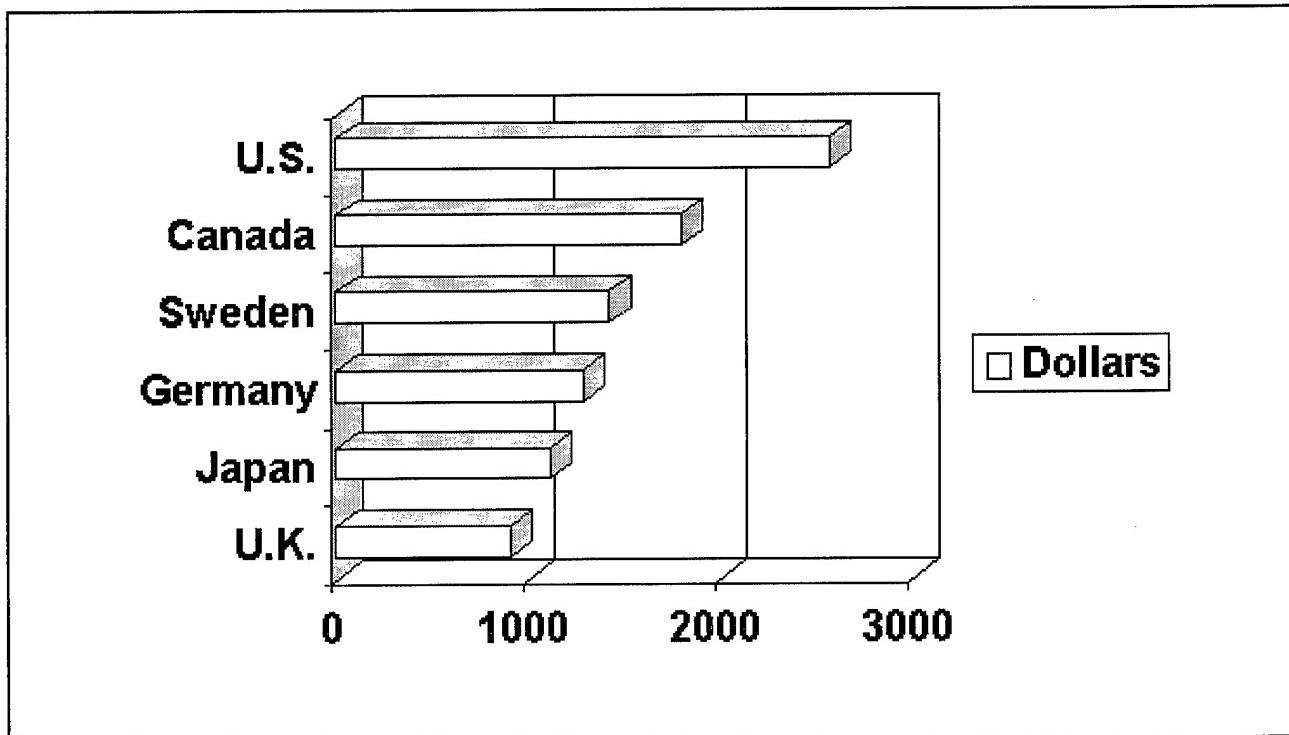
Figure 1--Health Care Expenditures per Capita in Six Countries, 1990
Note. U.S.$ with conversions. Source. Hsiao, 1992.

highest nation, Canada, which spent $1,795. The United Kingdom (U.K.) spent only $909, while Japan and Germany spent $1,113 and $1,287 respectively. When measured as a percentage of GNP, the results are the same. The U.S. ranked highest (11.5 percent) and Japan the lowest (6.7 percent) (Hsiao 1992).

This signifies a greater than 300 percent increase in the percentage of the GNP spent on health care since 1960 and cannot be explained by economic growth or gains in productivity alone. Spending of this magnitude on health care causes funding for other social programs and other national interests to suffer. Furthermore, the impact on labor costs because of health care expenditures restrains our ability to compete on a global level since these costs are often much less in competing nations. The increased allocation of funds toward health care has resulted in fewer available resources for use in educational programs, low cost housing, and child care for the underprivileged (Ginzberg 1987).

Health care expenditures rose about 15 percent per year through 1983, followed by a four-year respite during which they increased only half as fast, 7.6 percent per year. Since then, the annual increase has accelerated to 11 percent, and is expected to remain about 5 percent through 1998 (Ashby, Greene 1993).

Determining return on investment through examining health care outcomes is difficult to isolate. However, infant mortality and life expectancy are universally accepted as indicators of
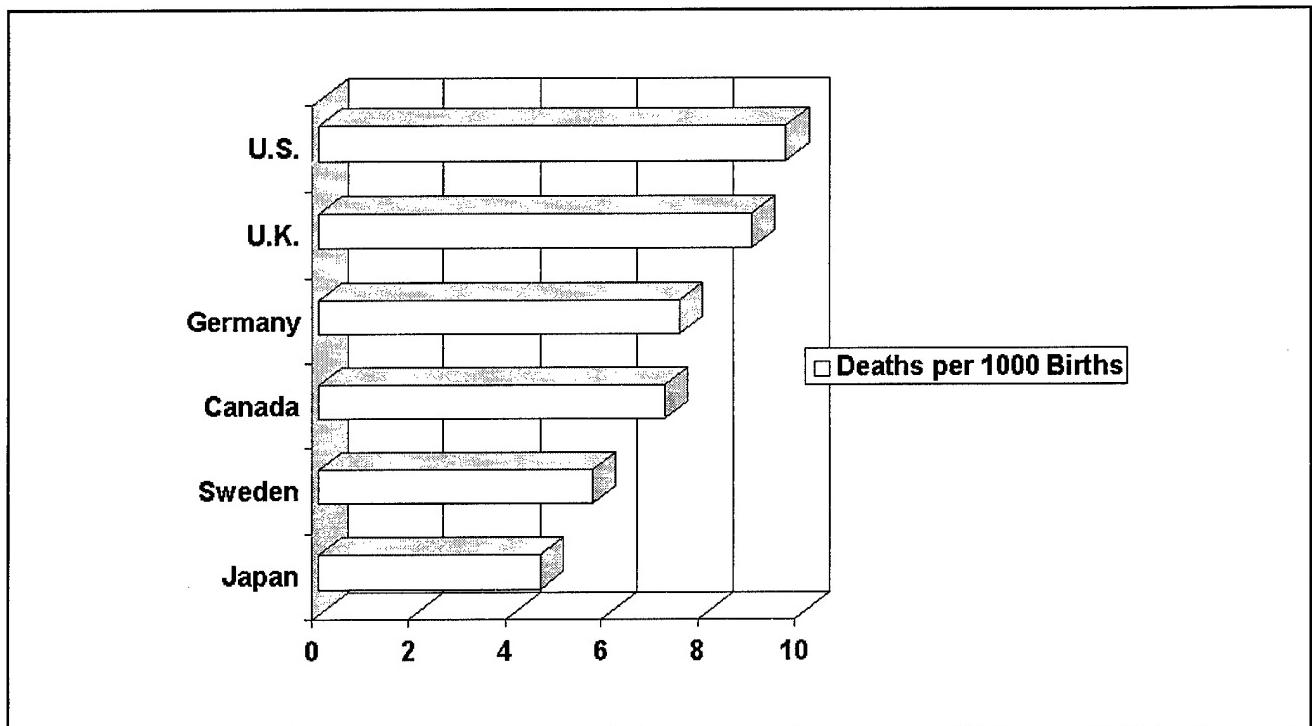
Figure 2--Infant Mortality Rates in Six Counties, 1989
Source. Hsiao, 1992.

health and provide insight into our national return on
investment. Figure 2 shows that among five nations, infant
mortality ranges from a low of 4.6 per thousand in Japan to a
high of 9.7 in the United States. The United Kingdom has the
second highest rate of 9.0, while Canada and Germany are 7.2 and
7.4 respectively. As identified by the chart, the United States
is the worst (Hsiao 1992).

Life expectancy is the second indicator of health status in
a nation. Once again the U.S. is the worst with an average life
expectancy of 75.6 years (figure 3), and Japan and Canada tied
for the longest with 79.2 years. The United Kingdom is next to
worst with 76.3 and Germany occupied the middle position (Hsiao 1992).
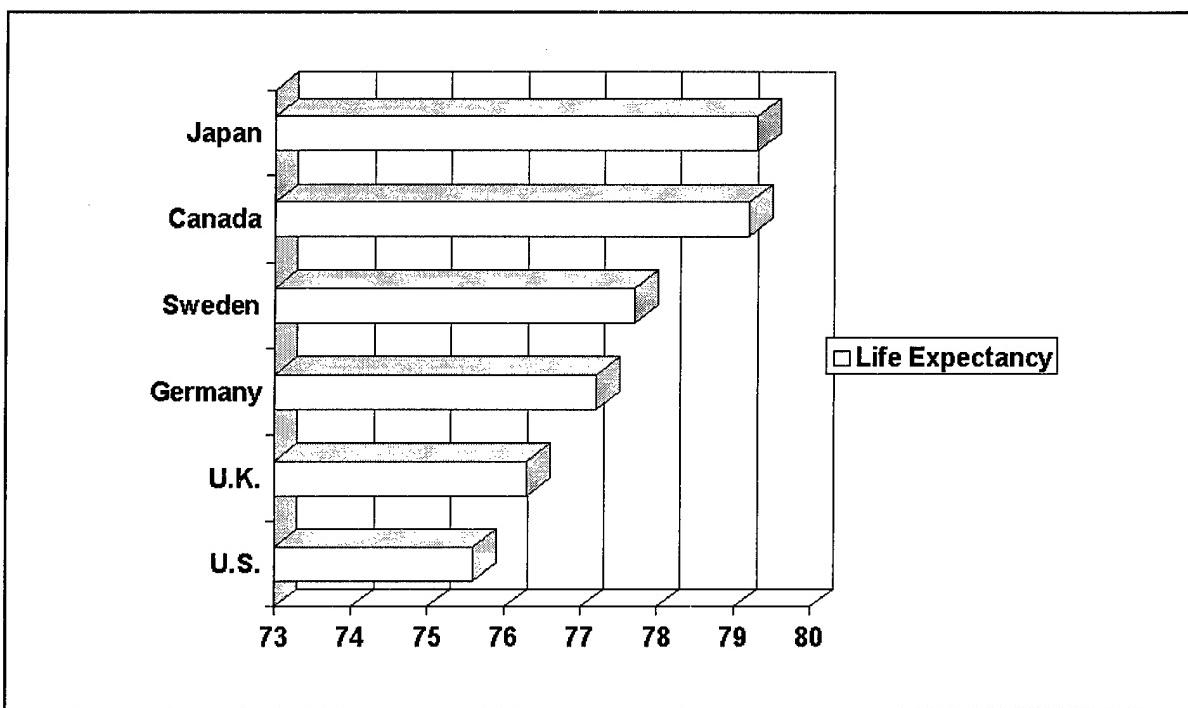
Figure 3--Life Expectancy in Six Countries, 1990.
Source. Hsiao, 1992.

The United States Department of Defense (DOD) is no exception.   The morale position of the services has been "We must take care of everyone." Spending for health care within DOD has consistently increased for the past three decades.   In 1967, health care consumed 1.7 percent of the total DOD budget while in 1994 that percentage has risen to 6.0 percent.   However, 6 percent compares favorably to the nations 14.7 percent.   Analysts at DOD Health Affairs estimate that the percentage will increase to 6.3 percent by 2001.   Five year incremental changes in the health care percentage of the total DOD budget is noted in figure 4.

Following the Viet Nam War, shrinking resources caused DOD to rethink and reshape the fashion in which this benefit would be
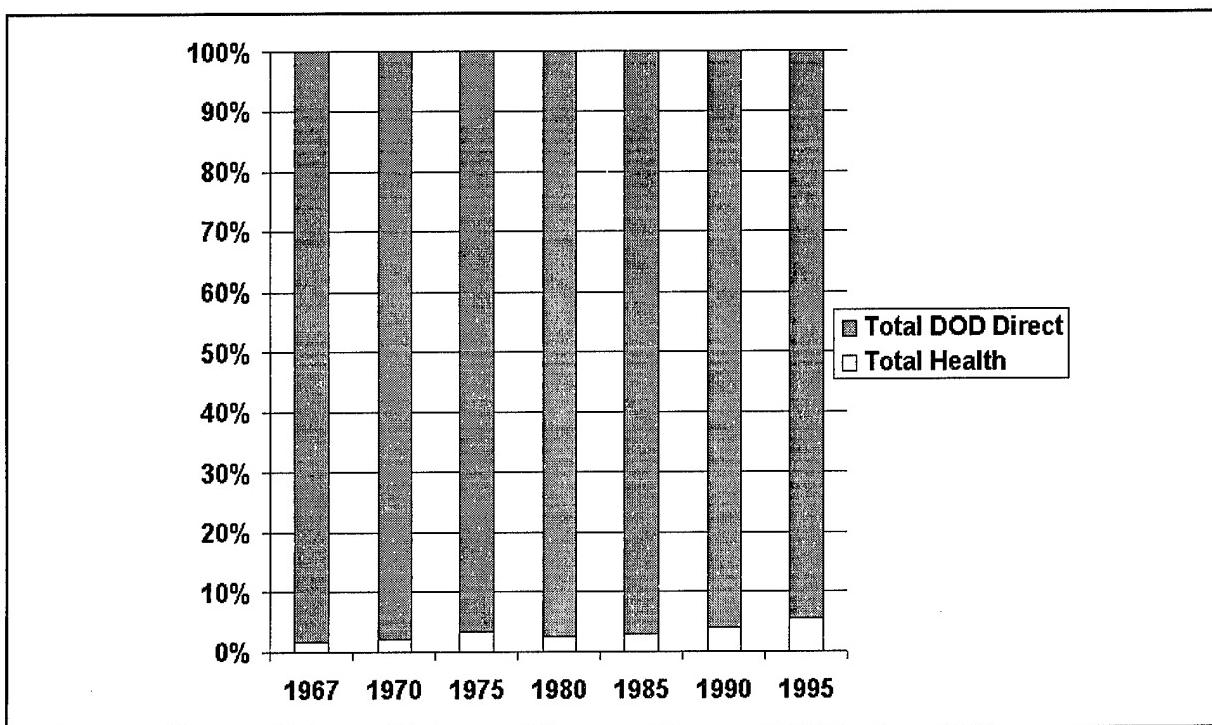
Figure 4--Percentage of Total DOD direct Programs dollars spent on Health Care. Source. DOD Health Affairs, 1994.

provided. With health care inflation easily out-pacing the
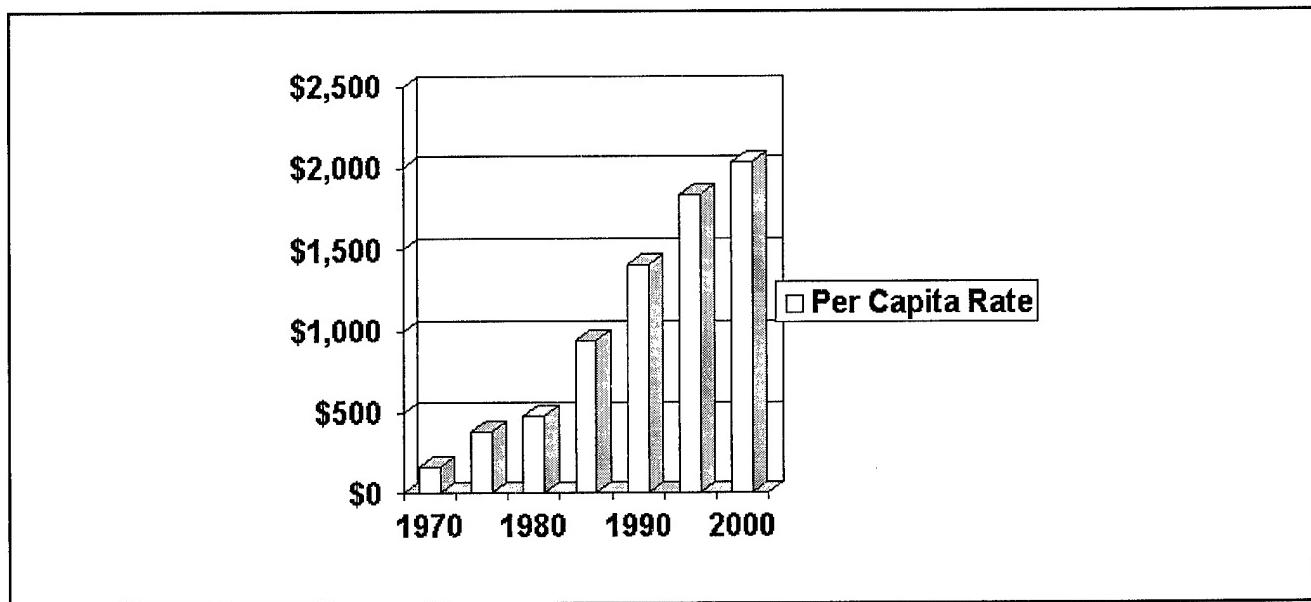
Figure 5--Per Capita Rate in Five year Increments.
Source. DOD Health Affairs. Note. Year 2000 is Estimated.

economic inflation rate, it did not take long for military leaders to realize that valuable resources for training were now diverted to treat the beneficiaries as noted in figure 5 showing the per capita rate increases for health care. But, compared to the roughly $4,500 per capita rate for the nation, Army medicine is cheaper (Cahill 1994).

What is Capitation financing?

Under capitated payment arrangements, the provider or system receives a predetermined amount of money to care for all or a portion of a patient's needs over a period of time, such as a month or a year. If the care provided costs less than the payments received, then the provider earns a profit. If the care costs more than the capitation amount (payment received), the provider loses money. In general, it is felt that capitated payment encourages efficiency and health promotion and disease prevention, but some feel it may have a detrimental effect on quality (Newmann, Suver, Zelman 1993).

Since in a capitated environment some believe "less is always better", it is understandable that concerns for quality would arise. If a patient's course of treatment is cut short to achieve a profit, the quality of care for that patient is in question. If a patient is discharged prematurely from the hospital, quality of care is once again questioned. However, failure to treat a patient correctly usually results in that patient becoming more severely ill later resulting in higher treatment costs. The follow-on treatment will likely result in

greater expenses for the provider, and less profit.

Furthermore, underserving patient's needs will lead to dissatisfaction. Dissatisfied patients will take their money and seek treatment elsewhere. Both outcomes are self destructive and serve to keep providers honest. Capitation will also promote preventive measures by providers to keep their patient populations healthier, and out of their offices.

Capitation is also an integral part of managed competition. Alain C. Enthoven, a professor at Stanford University's Graduate School of Business, is a strong advocate of managed competition. He is also a member of the Jackson Hole group that urged President Clinton to adopt managed competition as the model for health care reform. Enthoven describes managed competition as "a purchasing strategy to obtain maximum value for employers and consumers" (Enthoven 1993b).

Using rules of competition that reward health plans for doing the best job of improving quality, cutting cost, and satisfying patients is the central theme behind managed competition. The rule must not be designed to reward health plans selecting good risks, segmenting markets, or otherwise defeating the goals of managed competition. Managed competition occurs at the level of integrated financing and delivery plans, not at the individual provider level (Enthoven 1993b).

One striking feature of the U.S. health care economy to date is how little "value-for-money" competition exists. Charles Weller has described our traditional system of fee-for-service,

solo practice or small group practice, free choice of provider, and payment by remote third party as "guild free choice" (Weller 1984).

The principles of this system and their consequences follow: (1) Free choice of doctor by the patient, which means that the insurer has no bargaining power with the doctor; (2) free choice of prescription by the doctor, which prevents the insurer from applying quality assurance or review of appropriateness; (3) direct negotiation between doctor and patient regarding fees, which excludes the third party payer, who would be likely to have information, bargaining power, and an incentive to negotiate to hold fees down; (4) fee-for-service payment, which allows physicians maximum control over their incomes by increasing the services provided; and (5) solo practice, because multispecialty group practice is a break in the seamless web of mutual coercion through control of referrals that the medical profession has used to enforce the guild system (Enthoven 1988).

The precursors of competition are many. However, the origins of today's competitors are in prepaid group practice. These multispecialty group practices contract with employer groups and individuals to provide a comprehensive set of health care services in exchange for periodic per capita payments set in advance (Enthoven 1993b). This is an example of a capitated arrangement. The risk lays with the providers to treat the employer's patients efficiently in order to maximize profits.

In the health care field, capitation means a fixed payment

to provider or system to care for all of a patients needs for a specified period of time. A typical arrangement would be a Per Member Per Month (PMPM) fixed payment. The amount of work required to provide the services, and the amount of service an individual receives, has no direct impact on the rate. Capitation has been branded a "dirty" word by some providers and consumers alike. For many providers the term is synonymous with socialized medicine and loss of professional prerogatives. For many individuals, it is primarily associated with limitation on choice of their favorite doctor or treatment facility, and health care executives believe it often connotes sharing of risks they are unable to control (Sigmond 1994).

History of U.S. Health care

Health care in the United States has undergone significant changes in the past fifty years. Federal interest and involvement in the health care service of the United States was essentially nonexistent until the 1930's. When the great depression financially broke most of the working class citizens in this nation, it became evident that intervention was necessary. During the Great Depression, hospitals were in desperate financial straits but managed to survive by playing a leading role in inventing capitation payment for services (Sigmond 1994).

One such arrangement occurred in Dallas where hospitals sold their services to individuals or families for a monthly capitation fee of 50 cents to $1. Under this arrangement the

subscribers paid the hospital directly, without an "intermediary." Hospitals throughout the nation marketed their services to businesses and individuals on a capitated basis in exchange for a modest monthly payment. Curiously, this "exclusive provider plan," as called today, preceded the development of the "free choice" Blue Cross plans. Eventually, with strong leadership from the American Hospital Association, hospitals throughout the nation joined in local networks. All the hospitals in an area agreed to the same capitation, and eventually all of the plans converted into a fee-for-service payment program (Sigmond 1994).

Access to care was a major concern for the nation in the 1940's. The federal government commissioned a study that identified the need for greater access to facilities and developed a program to increase public accessibility to care. Known as the Hill-Burton Act of 1946, growth and expansion of our health care facilities began. Federal funding (or fund matching) became available for the construction of hospitals across the nation. The program was so successful that overexpansion resulted. In return for use of federal funds, facilities agreed to provide care to the indigent population (Starr 1982).

Expansionism continued well past the 1960's leading to the move to supply more physicians to the marketplace. Physician specialization continued and the nation enjoyed their services and accessibility. The Social Security Act of 1965, as part of President Johnson's "Great Society," continued to increase health

care access to the citizens of our nation. Under Title XIII and Title XIX of the Social Security Act, the government assumed responsibility for the care for millions of previously uninsured elderly (Medicare) and indigent (Medicaid) (Starr 1982). Fixed payment became the predominant form of hospital reimbursement when the government adopted this approach, with tax payments as the source of funding for Medicare and Medicaid (Sigmond 1994).

While these systems were successful in increasing access to the needy, the system was not without flaws. There was no incentive for hospitals or providers to operate efficiently under the established method of reimbursement (Penner 1992). Hospitals were reimbursed based upon the services provided to the beneficiary. There was no incentive to practice medicine efficiently. The incentive was to provide as many services as possible because reimbursement was guaranteed. Medicare reimbursement was set at "reasonable cost" and a 2 percent-plus factor to provide incentive for the hospitals and providers to participate in the care of this population (Davis et al. 1990).

To further exacerbate the over-utilization problem, the government contracted for Fiscal Intermediaries (FI) to handle the financial aspects of the program. Typically, the FI was the Blue Cross Plans who had significant ties to the medical profession. Instead of confronting hospitals with excessive lengths of stay or high inpatient costs, the FI accepted the expenditures for fear of revenge by hospitals that could threatened their very existence. This made the governments

ability to contain costs impossible (Davis et al. 1990).

The aforementioned problems contributed to the total increase in the amount of the Gross National Product being spent on health care. Between the years of 1965 and 1975, that percentage rose from 5.9 to 8.3 percent of the GNP (Salmon, White, Feinglass 1990). Once again, the attention of the government was directed toward health care. However, it was no longer focused on increasing access, but focused on cost containment. The U.S. government became deeply concerned with health care cost containment because Medicare was the single largest buyer of health care in the United States (Aaron 1991). The urgency to find programs to correct this fact came to the forefront.

Presidents Truman, Nixon, Ford and Carter have all proposed national health insurance without success. President Nixon proposed a program reflecting the single payer system currently used in the Canadian Provinces. In Canada, the government provides 40 percent of the funding necessary for coverage and the provinces fund the remaining 60 percent. Health care coverage is universal, and all citizens, regardless of their ability to pay, have insurance. The provinces can charge premiums to their populations to offset the 60 percent funding required by the Ministry of Health, however, care cannot be denied because of inability to pay this premium.

President Nixon did find success in passing the Social Security Amendments of 1972. These amendments called for the

organization of Professional Standards Review Organizations (PSRO) which gave the federal government increased cost-containment authority (Eubanks 1991). Section 223 of this amendment also permitted the denial of reimbursement by the federal government for care considered inefficient. This amendment would later become the cornerstone for the Medicare Prospective Payment System (PPS) (Penner 1992).

Paul Elwood, Walter McClure, and colleagues proposed a correctly incentivized national "health maintenance strategy" in 1970 that would deal with the crisis in health care cost and distribution by promoting "a health maintenance industry that is largely self-regulating." Their work led directly to the passage of Public Law 93-222, also known as the HMO Act of 1973 (Enthoven 1993b). Because of the cost-containment potential, and the increasing interest and acceptance of the concept, HMOs became the central concept of President Nixon's health program. Public Law 93-222 authorized the expenditure of $375 million in grants and loans over a five year period for the establishment of 115 HMOs. Participating HMOs were required to provide inventive financing programs/mechanisms (Shouldice 1991).

Corporate America witnessed the federal government's ability to apply cost-containment measures and decided to employ some cost saving measures of its own. The most common of these strategies include increases in cost shares and deductibles for employees, utilization and claims review, HMO enrollment options, and wellness programs.

Health care managers began to question the services provided to their beneficiaries, and expanded utilization review (UR) resulted (Penner 1992). Specific areas addressed by utilization review programs include prospective review, preadmission certification for elective procedures, concurrent review that includes discharge planning and length of stay authorization, and retrospective review of claims susceptible to abuse (Jones 1990).

Another form of managed care organization arose known as a Preferred Provider Organization (PPO). PPO's are organizations that contract to provide services at a discounted rate under conditions of utilization review in exchange for consumer incentives to utilize the PPO network of physicians and hospitals. PPO's provide patients the ability of selecting a provider from a group of providers within a certain specialty. Greater patient autonomy exists relative to physician selection.

Preferred Provider Organizations gained popularity because they offered an alternative to HMOs that attracted both providers and insurers. Provider sponsorship and support of PPOs were driven by three major factors: (1) the desire to retain or acquire a large, privately insured patient base in the face of increasing competition; (2) the determination to maintain traditional, fee-for-service system of financing and delivery of health care; and (3) a strong motivation to retain provider control over the allocation of health care resources (Shouldice 1991).

Utilization review programs and case managers learned it was

much less expensive to treat patients on an outpatient basis than as an inpatient. With this discovery, and the financial incentive to treat patients in the most efficient setting to maximize profit under fixed reimbursement contracts, came a dramatic shift in treatment from inpatient to outpatient environments. The federal government's implementation of the Yale University developed Prospective Payment System in 1983 caused hospitals to examine treatment settings as well.

Under PPS, hospitals were no longer reimbursed on a reasonable cost basis, but received an amount that was predetermined based upon the Diagnostic Related Group (DRG) that best described the patient's diagnosis. Hospitals suddenly found themselves at financial risk for inefficient performance of its employees and inexcusably long lengths of stay. In fact, the entire health care industry began to examine ways to respond to the new financial incentives. They are still incentivized to do inpatient care and generate DRG's, but generate them cheaply (Cahill 1994). Medicare inpatient days dropped from 116 million in 1983 to 105 million in 1984, with a further decline to 96 million by 1986, while costs continued to escalate (Davis et al. 1990).

Conditions which prompted this Study

The military has not been immune to the plight of the private health care sector. Actually, the military has undergone quite similar experiences and used similar tactics to gain control over health care costs within the services. Presently,

the Department of Defense is entering contractual arrangements with outside (civilian) managed care companies to provide services to our beneficiaries within specified regions. These contracts are being let on a non-capitated basis, allowing for bid-price adjustments to correct any unexpected overruns on the part of the contractor. These contracts do not represent a true "at risk" capitated contract such as one might expect. It is believed that these "usage" contracts, as opposed to true capitation, will not result in the greatest savings for the government.

Traditionally, throughout the managed care world, capitation leads to decreased Lengths of Stay, a higher Case Mix Index of inpatients, and an increase in Outpatient Visit rates. With the introduction of the Prospective Payment System, which fixed the amount paid for procedures performed on Medicare recipients, lengths of stay rapidly declined. Under a fixed or "capitated" payment system there is no longer an incentive to provide unnecessary care or prolong hospital stays to excessive lengths.

In 1984, the Average Length of Stay (ALOS) for the entire United States was 9.0 days.(Hatten, Connerton, 1986) The percentage change in ALOS for 1984 (PPS year 1) and 1985 (PPS year 2) was a 7.8 percent total decline. PPS year 1 represented an 11.6 percent decline and PPS year 2 slowed to a 2.5 percent decline (Hadley et al. 1989). This exemplifies the initial reaction to fixed payments, the elimination of waste.

The greatest determinant of ALOS change is understandably the diagnosis of the patient and the corresponding DRG. While some DRG's only dropped fractionally, others declined drastically. For example, for DRG 407 (other myeloproliferative disorders or poorly differentiated neoplasms without CC) the ALOS declined by 50.1 percent (8 days) between 1983 and 1988 (Latta, Helbing 1991). More currently, the ALOS from 1992-1993 has dropped from 4.95 days to 4.83 days (Lutz 1994). This slow decline may indicate we have reached a point were any further decline would seriously jeopardize quality and endanger patients. Future technological advances may influence a further decline.

Similarly, the Case Mix Index which is used to indicate the severity of a patient's illness episode, has increased indicating that hospitalized patients are "sicker" patients. All analysts who have studied the issue of CMI in the Medicare inpatient population have found that these hospitalized individuals are increasingly more seriously ill than when retrospective reimbursement was in practice. This increase is due in part to the change in the Medicare CMI following the initiation of PPS in 1984, followed by an increase of 3 percentage points in 1985 and 1986. However, the increases since then reflect real changes in the inpatient case mix (Lave, 1989).

A portion of the increase can be accounted for by the increase in ambulatory surgery and the substitution of outpatient for inpatient care and some by outpatient management of less severely ill cases that would have previously been hospitalized

(Lave 1989). Some argue that using CMI and DRG's will lead management to develop "product lines" within their facilities to capture only the most profitable cases and avoid the less profitable (Berki, 1985). In fact, "Centers of Excellence," may be the answer to reducing redundancy of services and equipment with a final outcome being an overall savings from economies of scale.

Co-existing with changes in ALOS and CMI, a greater reliance has developed for outpatient treatment. Once again, capitation encourages treating the patient in the least expensive environment and managing the course of treatment. During the Catchment Area Management Demonstration Project (CAM) conducted at Fort Carson, Colorado, outpatient visits increase dramatically over the demonstration period.

The CAM projects were the precursor to the GTC initiatives and was developed under a capitated budgeting process. Therefore, the incentive was to treat the patients in the least expensive environment without sacrificing quality of care, and for many that environment turned out to be the outpatient setting. Total Outpatient Visits (OPV's) for Fort Carson increased from 472,955 in FY88 to 602,269 in FY91, an increase of 129,314 visits (PASBA 1994).

These three variables (ALOS, CMI and OPV's) will be measured for the thirteen GTC sites to determine the effects, if any, as a result of capitated budgets. To date, there have been no major studies completed to determine if the aggregate changes across

the GTC sites follow the aforementioned trends.

Statement of the Problem

Determine the behavioral effects of capitation budgeting upon Military Treatment Facilities in the Army Medical Department (AMEDD). Specifically, to determine if lengths of stay have decreased, while case mix indices and the number of outpatient visits have increased in the thirteen original Gateway to Care sites.

Hypothesis and Objectives

I will be testing three hypotheses during the course of this study. All three hypotheses will attempt to evaluate the effects of operating in a capitated environment with limited resources and unlimited risk.

The first hypothesis will examine the Average Length of Stay for inpatient care.

The Alternate Hypothesis (HA1) states that:

Capitation budgeting will decrease the Average Length of Stay for inpatients within the Gateway to Care facilities.

The Null Hypothesis (H01) states that:

Capitation Budgeting will not decrease the Average Length of Stay for inpatients within the Gateway to Care facilities.

The second hypothesis tested examines the Case Mix Index of the inpatient population to determine if the patients we are admitting are sicker than those admitted when funding was determined by the amount of work performed.

The Alternate Hypothesis (HA2) states that:

Capitation budgeting will result in a sicker inpatient
population as measured by the Case Mix Index
for that population.

The Null Hypothesis (H02) states that:

Capitation budgeting will not result in a sicker
inpatient population as measured by the Case
Mix Index for that population.

The final Hypothesis tested in this study involves

OPV's. For the purpose of this study it will be assumed

that any increase in outpatient visits is the result of

capitation budgeting and shifting of patient treatment to an

outpatient setting.

The Alternate Hypothesis (HA3) states that:

Capitation budgeting will result in a shift of patient
treatment from the inpatient setting to the outpatient
setting as measured by number of outpatient visits.

The Null Hypothesis (H03) states that:

Capitation budgeting will not result in a shift of
patient treatment from the inpatient setting to the
outpatient setting as measured by number of outpatient
visits.

Table 3 listing all three hypotheses in compressed format
can be found in Appendix A.

<u>Scope of Study</u>

During the design phase of this study, it became evident

that certain assumptions were necessary to narrow the focus of

the study and to allow for a meaningful conclusion. The first

assumption made is that age and gender demographics for the

population studied have not significantly changed during the

study period. Furthermore, it is assumed that the utilization

patterns of this population have also remained static.

Another assumption is relative to the Gulf War. It is assumed that population changes which occurred when family members returned "home" while their soldier spouse was deployed resulted in misleading/inaccurate data for FY91 and FY92. All data for these fiscal years will be eliminated from this study to avoid inaccurate conclusions.

It is also assumed that any leadership changes occurring during this period will not affect the outcome. This assumption is made on the premise that regardless of who the commander is the incentive and motivations of capitation remain unchanged. Another assumption of this study is that any changes noted in the conclusion are in fact a result of capitation budgeting since there were no other such incentives, motivations or influence present in the environment during this time frame.

Active duty soldiers residing in the barracks typically remain hospitalized longer than soldiers with families living outside the barracks. Soldiers residing in the barracks usually do not have someone to assist them with post-hospitalization needs and care. In response to this, it is assumed that this population will have a longer ALOS and not necessarily represent accurate data for comparison.

Another assumption is that some retirees and their dependents are treated outside our MTFs. The MTF's ability to obtain information about resource/workload for this category is limited because many patients are seen outside the military system. Many opt for civilian treatment using third party

insurance provided by employers of retirees who continue to work after military service. Therefore, this study will focus on dependents of active duty soldiers.

Fort Drum, New York is assumed to not be representative of the original GTC sites because there is no inpatient treatment facilities. All inpatient care is contracted for in the civilian communities surrounding the post. Fort Drum will not be used in this study even though it did undergo capitation financing at the same time as the other GTC sites.

It is interesting to note that Fort Drum, which purchases its inpatient care from the private sector, requires an annual capitated rate 50 percent higher than its cohorts. While the Army saved the cost of building and operating a hospital, they must buy the civilian system at higher prices, episode by episode. This has great implications for downsizing and future studies. The rationale for this elimination is that Fort Drum did not have the facilities available to initiate any CHAMPUS

Table 1.--Study Sample Sites and Locations.

HOSPITAL NAME	LOCATION
Evans ACH	Ft. Carson, Colorado
Eisenhower AMC	Ft. Gordon, Georgia
Martin ACH	Ft. Benning, Georgia
Irwin ACH	Ft. Riley, Kansas
Munson ACH	Ft. Leavenworth, Kansas
Blanchfield ACH	Ft. Campbell, Kentucky
Leonard Wood ACH	Ft. Leonard Wood, Missouri
Keller ACH	West Point, New York
Womack AMC	Ft. Bragg, North Carolina
Reynolds ACH	Ft. Sill, Oklahoma
Wm. Beaumont AMC	Ft. Bliss, Texas
Darnall ACH	Ft. Hood, Texas

recapture programs, while the other facilities actively pursued this practice.

Only those facilities outlined in Table 1 will be included in this study. Facilities capitated in FY93 and FY94 will not be included based on the assumption that they did not have equal time in which to establish cost reduction strategies. Utilizing data from a newly capitated facility would skew the results from a facility having practiced in a capitated environment for three or more years.

Population changes are assumed to have no effect on the final outcome of this study since data from all facilities are aggregated, and means are computed prior to subjecting the data to statistical analysis. However, if the number of outpatient visits appears skewed following calculation as a possible result of patient category population changes, that variable will either be factored or eliminated from the study. If outpatient visits grew over the study period while the population decreased, the variable will be included because it shows behavioral changes even though the exact magnitude of the change may be somewhat misleading.

Finally, the data used throughout this study are assumed to be normally distributed. My research leads me to believe there is no reason not to make this assumption given the randomness of military assignments and the patient category studied. If this study included Retired soldiers and their dependents normal distribution may not hold true since we are unable to accurately

record and track their utilization patterns because some of their

care is rendered in settings outside the DOD health care system.

CHAPTER 2

LITERATURE REVIEW

The Army Medical Department's origins can be traced to July 27, 1775, when the Continental Congress established a Hospital Department for the Army during the Revolutionary War. The permanent Army Medical Department was established on April 14, 1818, with Joseph Lovell appointed as the first Surgeon General. The mission of the AMEDD during this period was to provide treatment and battlefield evacuation to soldiers; dependents were few and were not authorized treatments at government expense (HSC Mercury 1989).

In 1956, following the Korean War, Congress enacted the Dependents Care Act of 1956 (Badgett 1990). Initially known as the "Military" Medicare, the program was renamed the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) when the federal Medicare for aged persons was enacted in 1965. The act entitled dependents of active duty and retired military, along with their dependents, to government funded medical care. Since the inception of the CHAMPUS program, the cost of providing this service has escalated at an alarming rate. While private sector health care costs rose a numbing 10.5 percent from 1989 to 1990, CHAMPUS costs during the same period increased 13 percent (Penner 1992). Numerous demonstration projects over the years

have attempted to identify the ultimate solution to cost-containment problems.

Health Services Command (HSC) was formed in 1973 to provide centralized management and control over all Army health care facilities (medical and dental) in the Continental United States (CONUS) and in Puerto Rico, Panama, Guam, and Johnston Island. HSC set out to accomplish its mission with an annual budget of $4.2 billion and 3.2 million beneficiaries. The inventory of HSC included eight medical centers, 30 medical activities, 38 dental activities, and many free standing health clinics. The number of employees required to carry out this mission exceeds 50,000 members, military and civilian combined. Figure 6 depicts the locations of all HSC facilities (HSC Mercury 1992).

The period of 1976 to 1979 was an era of personnel shortages in HSC because of post Viet Nam downsizing. By 1978, 20 percent of the AMEDD's physicians had departed active duty forcing closure and/or curtailment of medical services at many locations. The result of this downsizing was a greater reliance on CHAMPUS with a corresponding increase in expense (HSC Mercury 1989).

For the next decade, CHAMPUS expenditures rose, cutting further into the warfighter funds allocated to the Department of Defense. In 1986, efforts to increase access to care for our beneficiaries increased this cost burden. The Army established eight civilian-run outpatient clinics that operated under contract with private corporations. Primary Care for the Uniformed Services (PRIMUS) clinics, as called by the Army and

Department of Veterans Affairs/Department of Defense
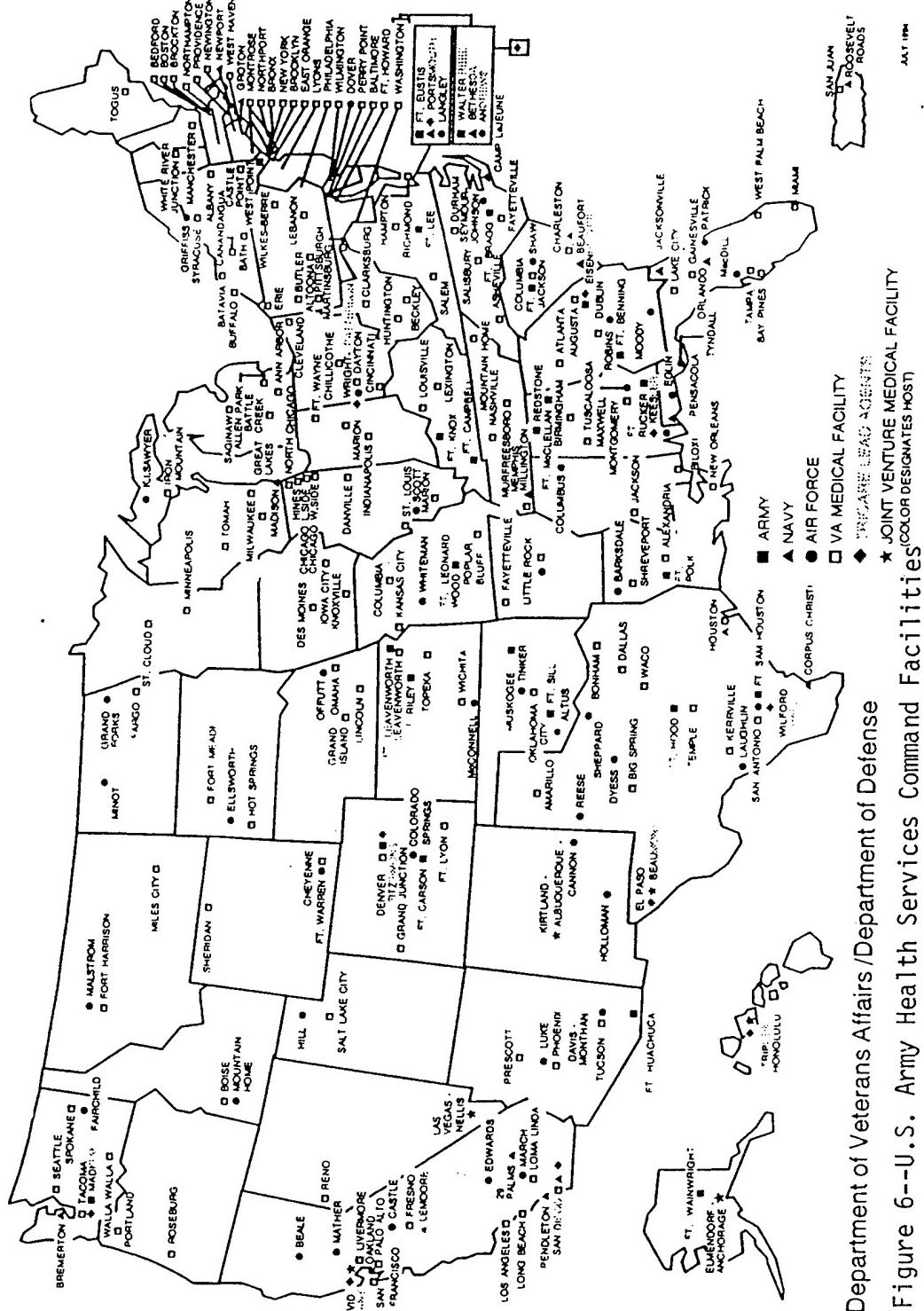
Figure 6--U.S. Army Health Services Command Facilities

Air Force, provide a range of free outpatient services to all DOD beneficiaries, including preventive benefits not available under CHAMPUS (e.g., physical examinations, PAP tests and mammograms) (Gasin, Sewell 1989). PRIMUS is a popular program with patients, but contracts must be closely monitored to prevent runaway costs and overutilization absent utilization management.

The PRIMUS Clinics are located in catchment areas served by military treatment facilities that exceed a 100-bed capacity. These clinics serve to increase access and recapture patients currently using standard CHAMPUS, bringing them back into a military controlled environment where cost containment can best occur. The federal government pays a fixed price, for each clinic visit, except for Fort Hood and Fort Benning where payment is capitated on a per member per month basis (Cahill 1994). The efficiency and cost containing abilities of these clinics are in question. In 1988, a report published by the Congressional Budget Office (CBO) provided mixed evidence of cost containment. For example, some clinic visits for adults were cheaper than those obtained under standard CHAMPUS, however, pediatric visits were more than standard CHAMPUS.

Another concern over the efficacy of the PRIMUS clinics was that of over-utilization. Absent any form of deductible or co-pay, beneficiaries frequented the clinics seeking treatment for ailments they may not have sought treatment for given some form of cost-sharing. Since the clinics were reimbursed on a per visit basis they certainly did not discourage such abuse. The

goals of co-payments are to "discourage demands for unnecessary care and reduce overuse while still meeting the health care needs of the recipient" (Lopez 1987). Also tied to this no cost-share issue is the attraction of the ghost population. Some patrons with third party insurance, most of which have some form of cost-share, would surrender their insurance in favor of the totally free PRIMUS option.

In the summer of 1987, another cost containment strategy came to fruition. The CHAMPUS Reform Initiative (CRI) represented the DOD's experimentation with exercising its buying power given its enormous size. Excess capacity in the civilian sector following implementation of the Prospective Payment System made this program attractive to everyone involved. The intent is to reduce or eliminate the practice of paying full billed charges and to shift the risk from CHAMPUS/DOD to those contractors who agree to reduce their fees under a provider network type of arrangement (Gasin, Sewell 1989).

CRI marked the first managed care interface between the military medical departments and the civilian community on such a grand and overt scale. A two-year test phase began in August 1988 in California and Hawaii. Under CRI, DOD beneficiaries had a triple-option benefit package: (1) Traditional CHAMPUS (patients pay approximately 20 to 25 percent of the cost of care obtained from civilian hospitals and providers of their choice); (2) CHAMPUS EXTRA (patients pay a reduced cost for using a provider network); and (3) CHAMPUS PRIME (HMO Option, includes a

provider network but is both more restrictive and comprehensive than CHAMPUS EXTRA (Gasin, Sewell 1989). Each program offered different arrangements of co-pays and deductibles, as well as provided benefits.

The CHAMPUS Reform Initiative combines global budgeting with key ingredients of managed competition. CRI is perhaps the only prepaid health care program designed to actively identify the sickest, most costly patients and direct them into an HMO or PPO. However, patients were frequently not closely monitored and their treatment often occurred in more costly settings. The CRI program uses two major tools to make its entire civilian/military system more efficient; resource sharing and health care finders. Resource sharing supplements under utilized services within the military treatment facility with civilian medical staff or equipment. This facet of the program has produced mixed results. Many resource sharing efforts fall far short of commander's expectations resulting in reluctance to continue the agreements.

CRI provided a windfall profit for Foundation Health Care. The total cost of CRI for the years 1990-1993 ate up two-thirds of the total CHAMPUS cost growth while serving less than one-sixth of the beneficiary population. CRI contracts resulted in costs that far exceeded that of what Standard CHAMPUS would have been for the same period (MEPRS 1994). Interestingly, both the General Accounting Office and the Congressional Budget Office believe we do not need contracts such as CRI to contain health care costs.

The General Accounting Office criticized CRI for restricting beneficiaries from receiving care at military facilities if they are not enrolled in the CRI coordinated care program. In 1992, Dorsey Chascavage, Senior issue specialist for the National Military Family Association, which supports application of the CHAMPUS Reform Initiative said "We hope (Dr. Mendez) really got the message," and "We are all for managed care, but we want a proven, tested plan" (Weissenstein 1992a).

While CRI was being carried out, DOD began another demonstration in which CHAMPUS funds were given to the individual services to handle. Up to this point, CHAMPUS funds were controlled by the individual service headquarters and local MTF commanders had no interest in the costs or utilization. In fact, the MTF incentive at that time was to encourage use of the CHAMPUS system to preserve direct care dollars for internal use.

HSC began setting up its Catchment Area Management demonstration projects at Fort Carson, Colorado and Fort Sill, Oklahoma. Both MTF commanders were given control of the CHAMPUS funds for their catchment area (a 40-mile radius surrounding the MTF). The commander used this budget along with direct care dollars to provide care to all of the beneficiaries within their respective catchment area whether care was rendered inside or outside the MTF. Commanders had authority to expend CHAMPUS funds for purposes other than direct care if such use would result in overall cost containment.

There were four primary objectives of the CAM demonstration

project: (1) Contain the rate of growth in CHAMPUS costs; (2) Improve accessibility to health care; (3) Improve satisfaction with health care; and (4) Maintain quality of health care. Autonomy for this project was so great that DOD required only two elements; voluntary enrollment and use of a health care finder to assist patients in finding their way through the system. The CAM demonstration projects were the first programs ever to hold an MTF commander responsible for both direct care and CHAMPUS expenditures (Kenkel 1991).

Both Army CAM sites sought to maximize the potential of the MTF (Santos, Johnson, Hudak 1993). Partnership agreements were established to bring civilian providers into the MTF to use excess capacity and treat beneficiaries who were currently using the more expensive standard CHAMPUS. Health care networks external to the MTF were either built by the MTF staff, or preexisted.

The exact success of the CAM demonstrations is uncertain due in part to Operation Desert Shield/Storm, and also because DOD Health Affairs has elected to forego CAM and "fix" CRI. Therefore, the RAND Corporation study of this demonstration is still pending with only a draft report completed at this time. It is certain however, that Army MTF commanders were successful in controlling the health care costs in their catchment areas, both direct and CHAMPUS.

The CAM demonstration projects served as the precursor to the Gateway to Care program implemented in 1992 by HSC. GTC,

also dubbed "Coordinated Care" was the beginning of true capitation financing across the AMEDD. Using the Formula in figure 7, and the explanation summary in appendix B, each MTF is given a lump sum of money at the start of the fiscal year. This capitated budget contains both direct care dollars, CHAMPUS dollars, and military labor dollars to provide all necessary care to the beneficiaries within that particular catchment area. There are no withheld funds to bail the MTF out of "Bankruptcy" at years end.

The Gateway to Care program began in fiscal year 1992 for thirteen initial sites. These thirteen sites varied in their ability to develop managed care network systems. Some sites were quick to become fully operational in a managed care setting, while others eased into managed care more cautiously. In FY 93, the remaining facilities fell under capitation budgeting with the exception or the Base Realignment and Closure (BRAC) sites, CRI sites, Panama and overlapping catchment areas such as WRAMC, Belvior, Meade, BAMC and Eustis. As of FY 94, all MTFs except BRAC sites, CRI/TRICARE, and Panama fell under the GTC capitated funding model.

TRICARE is the latest DOD cost containment/managed care strategy under development. With TRICARE, the United States has been divided into twelve regions, each of which has a tertiary facility appointed by DOD to act as the "Lead Agent" for all MTFs within that region regardless of service affiliation. Contracts

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GTC FY 95 CAPITATED BUDGET ($000)
SM MEDDAC / LG DIVISION MEDDAC

A — FY 94 CHAMPUS

CLAIMS	$14,868	1
FI COST	$654	2
GTC INIT	$1,621	3
TOTAL	$17,143	4
ADD FY 95 INFL 4.3%	$737	5
TOTAL	$17,880	6

53% 7
TOTAL FY 94 CAPITATED FUNDING

+

B — FY 94 MPA
MEPRS CAPITATED DATA (AVERAGE APR 94 - JUL 94)

TOTAL	$15,182	8
ADD FY 95 INFL 4.3%	$653	9
TOTAL	$15,835	10

+

C — FY 94 CAPITATED O&M (D&R)

	PAY	NON-PAY	
	55%	45%	11
	$8,358	$6,749	12
	ADD 4.3%	ADD 4.3%	13
	$359	$290	13
	$8,717	$7,039	14
TPCP (REIMB)		$423	15
TOTAL		$16,179	16

47% 17

=

D — FY 94 TOTAL CAPITATED FUNDING

BEFORE INFLAT	$47,432	18
INFLATION	$2,039	19
TPCP (REIMB)	$423	
TOTAL INFLAT	$49,894	20

$49,894 20

DIVIDED BY FY 94 MIDPOINT POP 52291 23 = COST PER BENEFICIARY SERVED

(CPBS) $954 24

21	51908	FY 94 E/S POPULATION
22	52674	FY 93 E/S POPULATION

25	52740	FY 95 E/S POPULATION
21	51908	FY 94 E/S POPULATION
26	832	POP CHG

21	51908	FY 94 E/S POPULATION
27	416	PLUS 1/2 POP CHG
28	52324	MARKUP POPULATION X (CPBS) =

MARKUP POPULATION X (CPBS) =

$0 32   FY 95 REVISED CAP FUNDING

TOTAL POP CHG ADJ $23 30
TOTAL FUNDING $49,917 29
REVISED CAP FUNDING $49,917 33

31   0% CORE DECREMENT   (DECR TAKEN ON TOTAL RESOURCES; CAP, NONCAP, & OCC HLTH - SEE PG 2)

G — FY 95 CHAMPUS

INFLATED TOTAL	$17,880	
MPA ADJ	$193	36
POP CHG ADJ	$12	38
TOTAL	$18,085	40

+

F — FY 95 MPA
MEPRS CAPITATED DATA (ADJ 1/2 FY 95 AUTH CHG)

	0	
MPA CHG	($365)	35
TOTAL	$15,470	34

+

H — FY 95 CAPITATED O&M (D&R)

DIR CARE O&M (DIR & REIMB)	$15,756	
CORE DECRMT	$0	
MPA ADJ	$172	37
POP CHG ADJ	$11	39
TOT CAP (DIR)	$15,939	42
TPCP (REIMB)	$423	
TOTAL	$16,362	41

=

E — FY 95 TOTAL CAPITATED FUNDING

TOT CAP (DIR)	$49,494	
TPCP (REIMB)	$423	
TOTAL	$49,917	33

Figure 7--AMEDD Capitation Budgeting Formula

are being let in each region to provide care to those dependents and retirees who are unable to access care in the MTF. These contracts are put up for bid by the government and are bid upon by companies wishing to take on the responsibility of developing a provider network to care for these individuals who would otherwise be using CHAMPUS.

Tricare contracts can include any services desired by the lead agent. If the lead agent believes the contractor, in the capacity of a "junior partner" can provide a service cheaper than the MTF, the lead agent may be wise to include that service in the contract. The lead agent/MTF is responsible for managing the care for those patients enrolled or empaneled into the Tri-care program and is theoretically held responsible by DOD Health Affairs for all health care that occurs or fails to occur within the region.

Working in a Tri-service cooperative environment, the lead agent has the authority to suggest staffing placements. These placements may be across service lines to provide a service to a location lacking necessary resources. Obviously, great cooperation and determination is required by the individual services to make such a relationship successful rather than adversarial.

To the dismay of many, the Tri-care contracts are not being let based upon capitation budgeting, although DOD is currently studying this option. The Defense Department apparently has opted for a transaction-based fee-for-service type of medical

program to cover some 250,000 military retirees and dependents in Oregon and Washington (Weissenstein 1994b). This leaves the Government at risk rather than the contractor, the reverse of what is desired under capitated budgeting.

In conducting this literature review, I have been unsuccessful in finding any published studies relating to capitation budgeting and the variables included in this study. Articles published on the CAM demonstration sites provide some insight but are not specific about statistical changes noted. However, there is significant personal experience among commanders and various staff officers to provide expert testimony to the trials and tribulations of this program.

CHAPTER 3

METHODS AND PROCEDURES

This is a non-experimental study using retrospective data to
determine behavioral changes in Average Length of Stay, Case Mix
Index and the number of Outpatient Visits for the GTC sites.
Using non-parametric statistics, least-squares regression
analysis will serve as the primary tool to determine the
regression equation and observe for trends both prior to, and
following, the onset of capitation budgeting at the original GTC
sites.

Comparisons between regression lines will be accomplished
using the students $\underline{t}$ test to determine statistically significant
differences between slopes not attributable to capitation. If no
significant differences between regression lines exist, and
factoring the regression line from FY90 to FY93 offers a
different Y-intercept, that difference (behavioral change) will
be attributed to capitation budgeting effects.

Before application, certain questions must be answered so
the appropriate data can be collected. The Management Science
and Operations Research model, a six-step approach to problem
solving will be used. This process, as outlined in *Quantitative
Approaches to Management, Eighth Edition*, is detailed in figure
8.

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│  │                                      │   │
│  │         MS/OR Process Steps          │   │
│  │                                      │   │
│  └──────────────────┬───────────────────┘   │
│                     │                        │
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│  │            Step 1:                    │   │
│  │   Observe the problem environment     │   │
│  └──────────────────────────────────────┘   │
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│  │            Step 2:                    │   │
│  │     Analyze and define the problem    │   │
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│  │            Step 3:                    │   │
│  │          Develop a model              │   │
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│  │            Step 4:                    │   │
│  │     Select appropriate data input     │   │
│  └──────────────────────────────────────┘   │
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│  │            Step 5:                    │   │
│  │ Provide a solution and test reasonableness │
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│  │            Step 6:                    │   │
│  │         Implement solution            │   │
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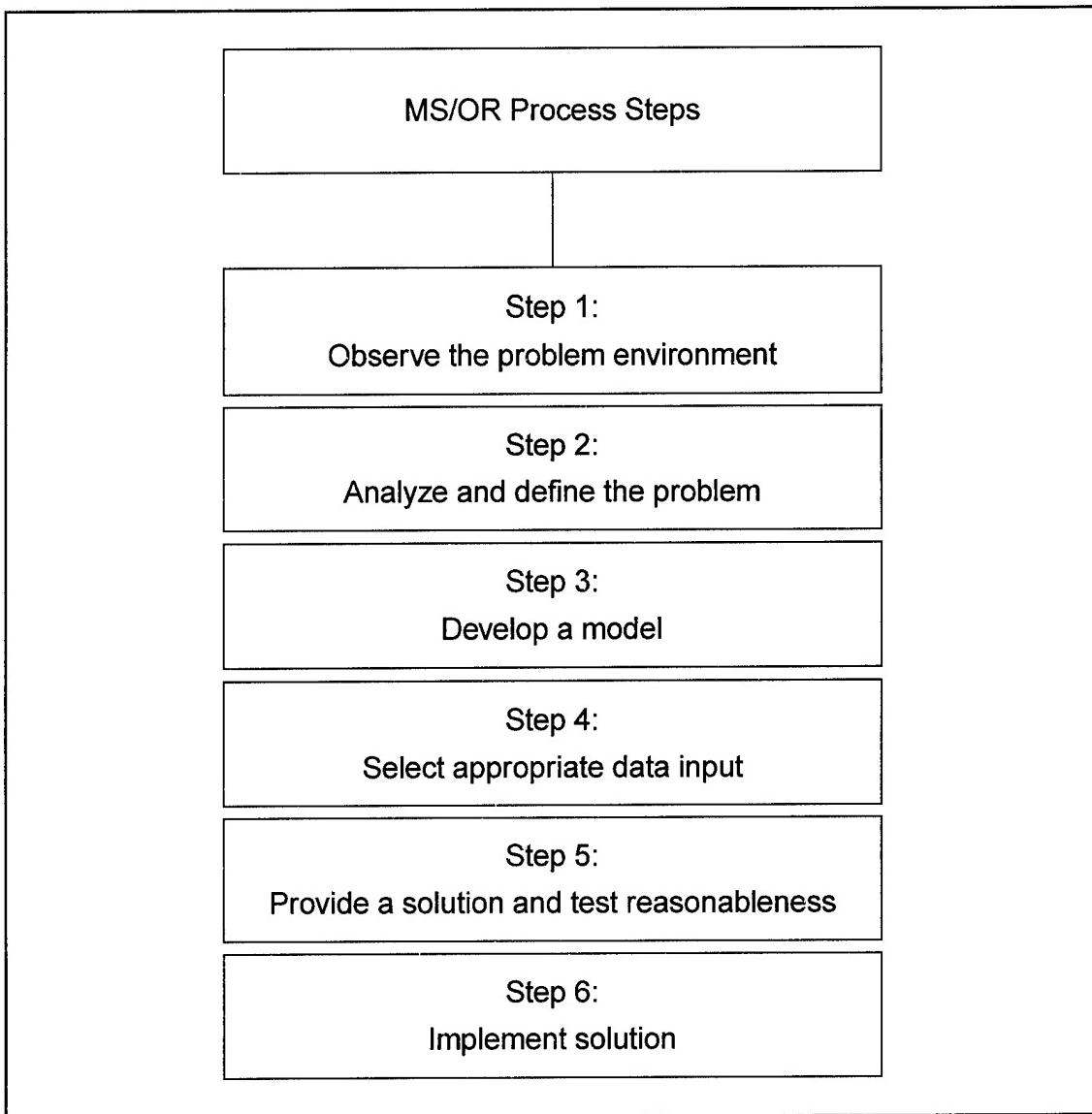
Figure 8.--Six Step Problem Solving Process.

The first step requires that the problem environment be observed and information gathered. Due to the retrospective nature of this study, observation is not possible. However, information gathering will be conducted using interviews and continued research with persons involved in the management of resources. Furthermore, Patient Administration Systems

Biostatistical Activity-version 2 (PASBA2), Retrospective Case-Mix Analysis System (RCMAS), and Defense Medical Information Systems (DMIS) data bases will be queried for information. The reliability and validity of the information in this study is assumed since data collection was not controlled by the researcher. However, this data represents the reports submitted on a regular basis to the Medical Command and is also the same information used to make strategic and operational decisions within the command. Therefore, I believe the data is as reliable and valid as it would be given any other means of collection.

Step two requires analysis and definition of the problem. The literature review, background search, and statement of the problem have been intended to provide this analysis. Continued research will undoubtedly reveal additional information resulting in the need for future studies.

The third step of this decision-making process is to develop a model. This model uses regression analysis to determine the presence of any trends prior to, or external to, capitation that may influence the outcome of this study. For example, in FY90 the national trend relative to length of stay was downward in response to the prospective payment system. However, I would expect to see no such trend in our MTF's since they continued to be reimbursed based upon the number of admissions and workload performed. More admissions and greater workload, led to greater reimbursement, hence the admissions for upper respiratory infections (colds).

Following the identification of preexisting trends, data gathered for FY90 and FY93 will be compared to identify changes in the Y-intercept of the regression lines which may signify a statistical difference as a result of the initiation of capitation budgeting.

Step four requires selection of the appropriate data input. The independent variables used in this study are the months of the fiscal year identified. For instance, for FY90, each month of the fiscal year will provide a different Average Length of Stay or Case Mix Index; the average for the command will be determined for the month being examined. The dependent variables examined are Average Length of Stay, the Case Mix Index and the number of Outpatient Visits.

Average Length of Stay data gathered through the PASBA2 database is calculated by totalling the number of inpatient bed days during a given period of time and dividing the sum by the total number of patient dispositions for that same period. The result of this calculation is reported as the ALOS for that period, for this study that period is one month intervals. Case Mix Index is similarly calculated by totaling the Relative Weighted Products (RWP) of the patients over a given period of time and dividing the sum by the number of patient dispositions during the period. Once again, based on one month intervals.

Outpatient visits include a vast array of patient encounters. In this study, OPV's represent the total number of OPV's during a given period in accordance with AR 40-48. This

regulation outlines a visit as: 1) interaction between an authorized patient and an individually privileged health care provider; 2) Independent judgement about the patient's care and an assessment of the patient's condition must be made; 3) Documentation must be made in the patient's authorized record of medical treatment. OPV data collected in the PASBA2 database include telephonic consultations and do not always mean a patient was physically seen.

The population of each area examined will be measured over all periods involved in this study. Any area with a significant population change that cannot be factored, or results in inaccurate outcomes, will be eliminated from the study.

Initial data gathered will include data for active duty, dependents of active duty, retirees, dependents of retirees, and all other. Further examination of these areas may lead to narrowing the focus to concentrate on a particular group. My concern at this point is the "snowbirding" of retirees and their dependents as well as the difficulty in collecting information on treatment/illness patterns because of alternate treatment options such as third party insurance apart from the military. Also, the fact that active duty patients residing in the barracks typically will have longer lengths of stay and are not CHAMPUS eligible places question as to the validity of this patient category for this study.

This would leave dependents of active duty as my most stable population. One reason for this is because family members are

typically residing in the same geographical location as their spouse and seek treatment in the MTF or surrounding catchment area. Furthermore, we have the ability to obtain information on this population of patient. Most patients in this category do not have third party insurance offering them treatment outside the scope of the MTF or CHAMPUS. Since all CHAMPUS claims are paid by the MTF, utilization patterns and cost information can be collected and used to develop various recapture initiatives. Extraneous variables will be controlled as they surface either through factoring, or data elimination.

Following data collection, a data base will be constructed and regression lines calculated for each fiscal year, pre and post capitation. As previously mentioned in the assumptions, fiscal year 1991 and 1992 data have been eliminated from the study due to the effects of Operation Desert Shield/Storm. Comparing regression lines of FY90 and FY93, significant changes in the slopes of the regression lines can be identified using the students t test. Should statistically significant differences be found, it is probable that other extraneous variables or forces are acting upon the variable. However, if no statistically significant difference is identified between regression lines, it will be assumed that any change in the units of measure outside the trend identified by the slope, will be a result of the incentives found in a capitated environment. Results will also be compared to that of the civilian health care arena (Medicare) to determine if the AMEDD is in step with current trends.

The fifth step of the process is to provide a solution and test its reasonableness. Data results will provide the behavioral changes that have occurred in response to capitation budgeting within the AMEDD and will act as a catalyst for future support of capitation contracts.

Step six is implementation of the solution. This is a retrospective study, capitation budgeting is currently practiced in all MTF's within the AMEDD. However, full capitation, including the accompanying risk, is not being practiced in the Tri-care contracts. The results of this study would lend support to pursuing a full at risk capitation approach to future Tri-care contracts.

CHAPTER 4

RESULTS

The focus of this study was narrowed significantly during
the data collection and analysis phase for many of the reasons
discussed in the aforementioned assumptions. First and foremost,
the number of variables initially examined for inclusion in the
study were decreased from seven to three as indicated in appendix
C. The three dependent variables studied are Average Length of
Stay, Case Mix Index and the number of Outpatient Visits.

I believe these three variables best represent the
behavioral changes resulting from capitation through observing
how long patients are hospitalized, the severity of their
illness, as well as observing patient shifts to an outpatient
setting. The other variables initially considered either
inadvertently measured the same thing or attempted to measure
elements in which data is not currently available.

Number of patient admissions was discontinued due to a high
correlation with OPV's (R=0.9362) and also with CMI (R=-0.1758).
The number of outpatient surgeries performed was dropped as a
variable because of the variance in reporting between facilities
within the command. Not all facilities report same day surgeries
as such, some facilities report them as inpatient procedures.

Determining changes in the number of operating beds proved

45

impossible. Beds are not reported by need or staffing, but are tied to the assigned readiness requirement for that MTF. It is certain that staffing of beds has declined, however, the beds are reported as operational. Finally, the number of non-availability slips issued was not continued as a variable. Data reported to PASBA is not considered accurate because the number of slips issued does not correlate with the number of slips used. Frequently, without MTF knowledge or tracking, a patient will not continue care following the issuance of a non-availability slip. This may be partially explained by the requirement for a 20 percent cost share (Debore 1995).

For the aforementioned reasons, the study is limited to ALOS, CMI and OPV's. Furthermore, these three variables are consistent with variables used in a study conducted in 1994 by the American Hospital Association (AHA) examining trends in health care facilities (AHA Health Statistics Group 1994).

The population used in this study is dependents of active duty soldiers. This patient category represents those individuals who can be treated in both the MTF and civilian (CHAMPUS) settings. This particular category of patient makes up approximately one-third of the total beneficiary population and a slightly greater amount in the sample population (GTC sites) as noted in figure 9. Active duty soldiers were eliminated from the study for two underlying reasons. First, soldiers residing in the barracks typically have longer lengths of stay than soldiers residing outside the barracks. Consequently, this
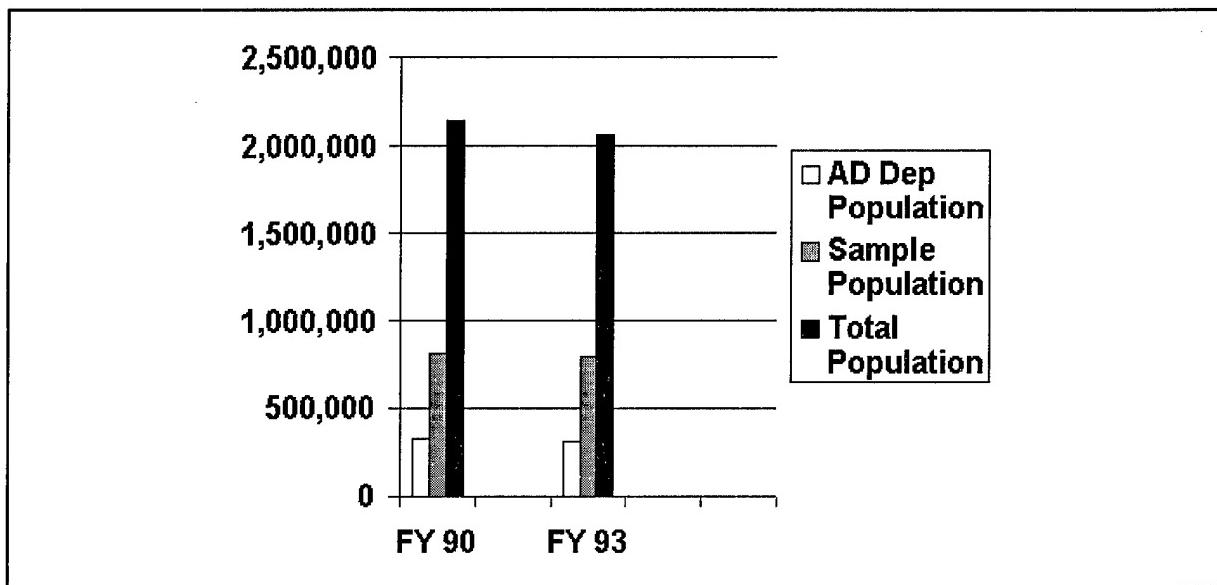
Figure 9.--Study, Sample and Total Populations

population does not accurately represent the normal hospital stay and CMI.

The second reason for eliminating this population is that they are not eligible to use the CHAMPUS option to receive health care from a civilian setting. The care provided to active duty soldiers occurs through the direct health care system. This means they do not use CHAMPUS funds and are not the target or concern for recapture initiatives. Health care will always be provided to the soldier, that is our main mission; Readiness.

Retired soldiers and their dependents were also eliminated from this study due to an inability to accurately track their movements throughout a data collection period. This is a very fluid population relative to the place in which they seek treatment. Absent some form of enrollment, this group of people provide little information to an MTF unless the MTF or CHAMPUS is

their sole source of health care. However, this is frequently not the case. Most retiree's and/or their dependents seek employment following military service and receive health care insurance benefits as part of their employment compensation. Utilization of this third party insurance outside the MTF results in loss of information and data collection ability. We do not have access to treatment records or billings for care receive through this modality. Therefore, any information we do have is likely not representative of this category of patients and would provide skewed results relative to the category as a whole.

I believe that the active duty dependant represents the most stable population. Most family members are stationed with their spouse and tend not to have third party insurance. They typically enter the health care system from the same point of entry with each episode of care and provide us with representative data. Given accurate information, recapture initiatives can be developed to treat patients efficiently. For example, OB/GYN is one cost area that many commanders have sought to recapture in the MTF to obtain savings of CHAMPUS dollars. This is the patient category most likely to require this form of care and provide accurate enough information for commanders to make good business decisions about their treatment.

Data Analysis

Throughout this study regression analysis will be reported based upon the formula $Y=a+bx$, were **a** represents the Y-intercept,

b represents the slope and **x** represents one unit of measure.
Negative numbers will be displayed in parenthesis. The critical
value for all t-tests in this study is 12.706 with 1 degree of
freedom.

The first variable tested is the Average Length of Stay.
Results indicate that capitation has influenced a decrease in
this variable leading to acceptance of the alternate hypothesis
(HA1). Descriptive and inferential statistics for ALOS are
listed in table 2. The regression equation for FY90 is

Table 2--Descriptive and Inferential Statistics

VARIABLE		MEAN	S.D.	Y-intercept	SLOPE
ALOS:	FY90	2.833	0.0623	2.86061	-0.0041958
	FY93	2.35	0.5937	2.66212	-0.0223776
CMI:	FY90	0.5580	0.0069	0.5646	-0.0010153
	FY93	0.5663	0.0160	0.576677	-0.0009157
OPV'S:	FY90	176,478	88,958	179,488	-463.052
	FY93	187,174	99,699	190,477	-508.213

$Y=2.86+(0.0042)x$.

The slope for this equation is a negative slope representing a
decline in the ALOS as seen in figure 10.

ALOS for FY93 yielded the regression equation
$Y=2.66+(0.0223)x$, once again indicating a negative slope with a
resultant decline in ALOS. Comparing the slopes for FY90 and
FY93 using the students t-test it is realized that there is no
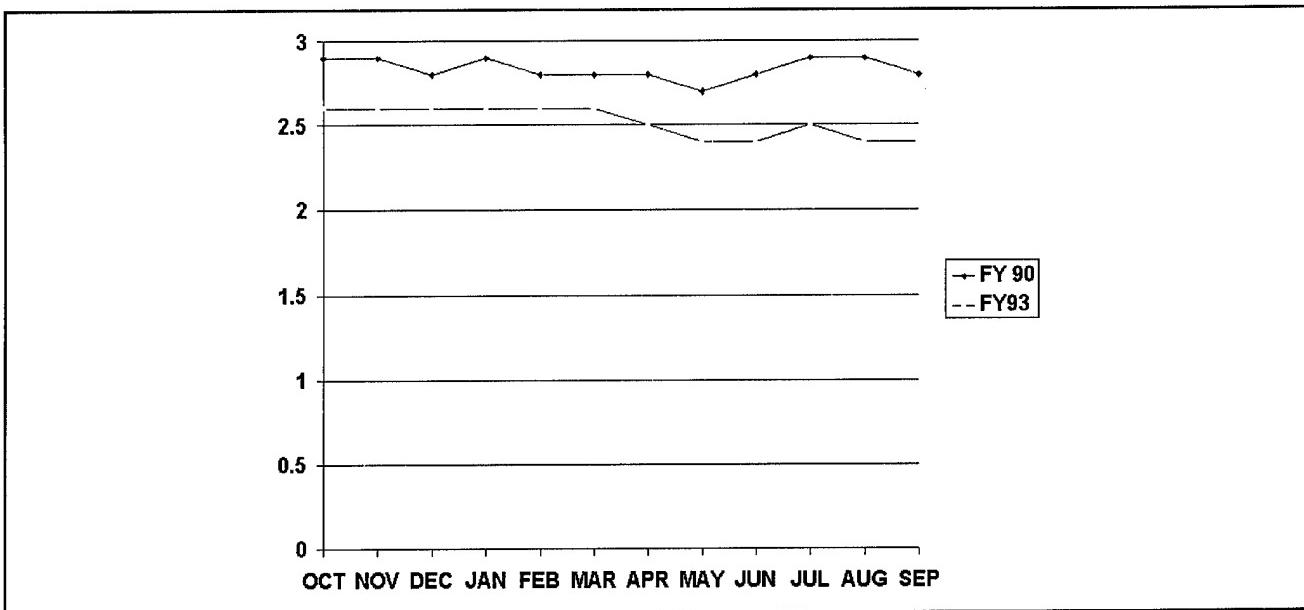
Figure 10--Average Length of Stay for FY90 and FY93.

significant difference between these two slopes with $\underline{t}$=5.33, p<.05. This insignificance indicates there are no other trends influencing this variable, which is consistent with my research findings.

Therefore, with no significant differences between the slopes, substituting for x in the regression equation for FY90 should lead to the Y-intercept for FY93. If the formula does not equate to the Y-intercept, any difference is considered the result of capitation budgeting; thereby supporting the alternate hypothesis (HA1). Substituting x=24 (24 months between 30 Sep 90 and 1 Oct 93) the formula equals 2.7096. The computed Y-intercept for FY93 based on actual data is 2.1248. Therefore, a difference of 0.5848 days additional decline in ALOS is attributed to capitation budgeting. As supported by the data represented above, the alternate hypothesis "Capitation budgeting

will decrease the Average Length of Stay for inpatients within
the Gateway to Care facilities" is accepted.

Case Mix Index is the second variable analyzed and also
supports the alternate hypothesis that capitation budgeting will
influence an increase in severity of inpatient illness.
Descriptive and Inferential statistics for CMI are listed in
table 2. Regression analysis calculated for CMI revealed an
equation for FY90 of Y=.5646+(0.0010)x. The slope for FY90 is a
negative slope indicating a declining CMI over the twelve month
period of this fiscal year as seen in figure 11.
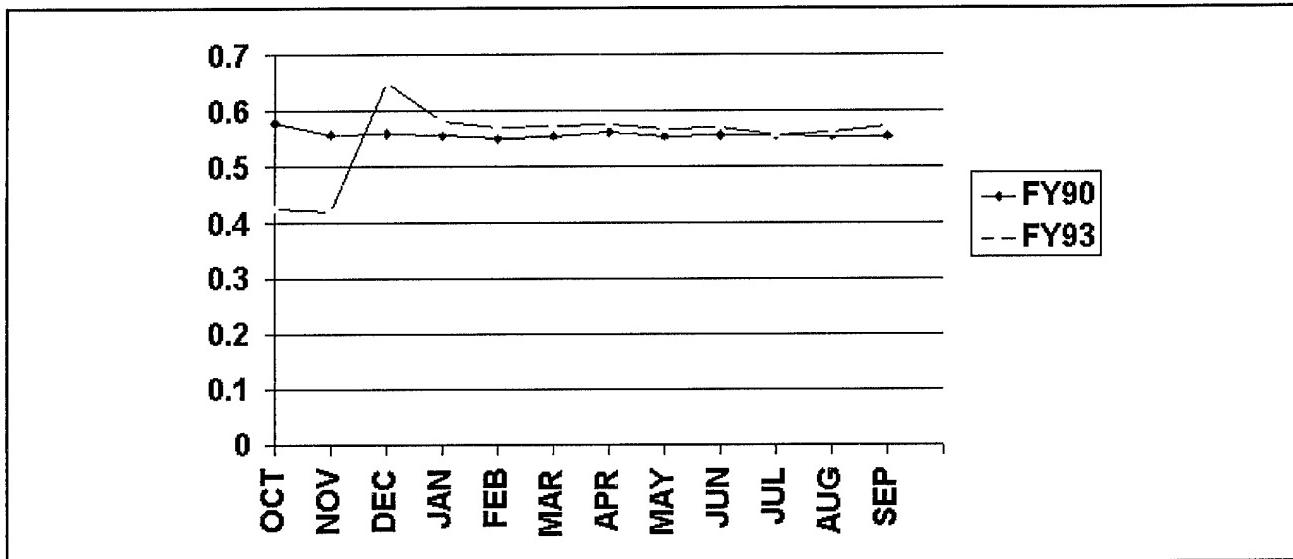
Figure 11.--Case Mix Index data for FY90 and FY93.

The regression equation for FY93 is Y=0.5767+(0.0009)x, once
again indicating a negative slope and a decline in the CMI over
the 12 month period. Using the students t-test to compare the
two regression lines, no significant differences exist between
the slopes, t=1.939, p<.05, thus eliminating the concern about
other trends affecting the variable. Using the regression

equation for FY90 and substituting x=24, then forecasting forward, the calculated Y-intercept for FY93 is .5406. However, the Y-intercept for FY93 based on actual data equates to a CMI of .5286. The difference between these two calculation represents an increase in the CMI by 0.0121.

Even though the CMI declined in each FY measured, there was an overall increase between FY90 and FY93 (figure 11) thus representing the influence that capitation budgeting has had upon the CMI of inpatients. Therefore, the alternate hypothesis (HA2) "Capitation budgeting will result in a sicker inpatient population as measured by the average Case Mix Index for that population" is accepted.

The third and final variable examined in this study is the number of outpatient visits used by this patient category. As with the previous two variables, the outcome supported the alternate hypothesis (HA3). The Descriptive and Inferential statistics for the number of outpatient visits are also listed in table 2. Using regression analysis, it is determined that the regression equation for FY90 is Y=179488+(463.052)x. The slope for the 12 months of FY90 represent a negative slope as noted in figure 12, indicating a decline in the number of outpatient visits as the fiscal year progressed.

Calculating the regression equation for FY93 yields the result that Y=190477+(508.213)x. The slope for FY93 is also negative as seen in figure 12. Both equations result in a negative slope indicating a decrease in the number of outpatient
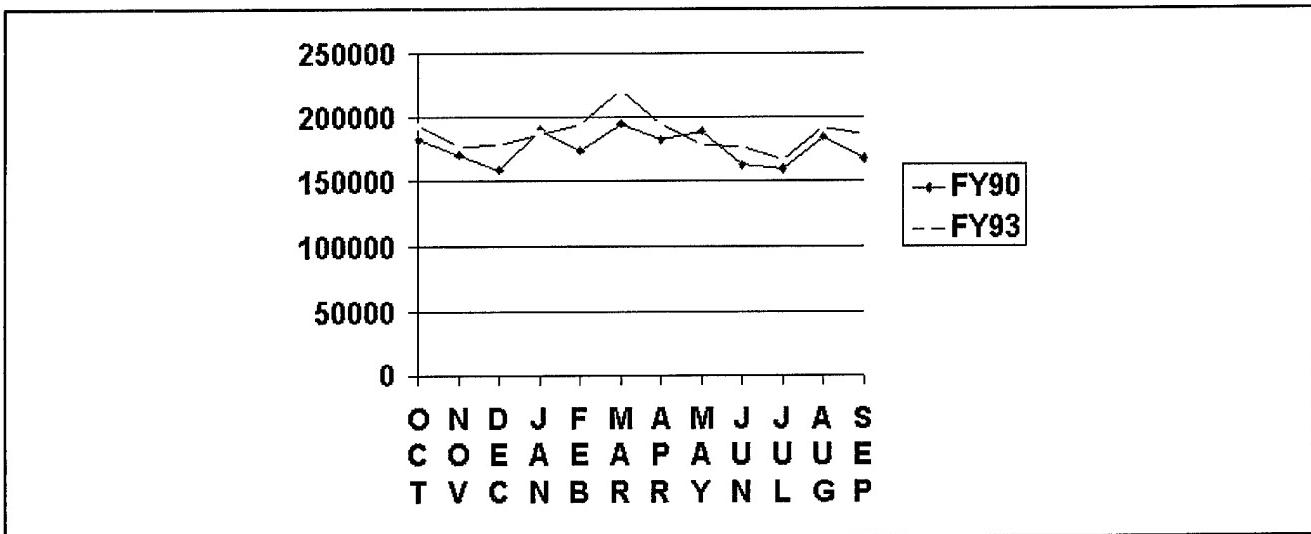
Figure 12.--Outpatient Visit data for FY90 and FY93.

visits in each year. Using the students $\underline{t}$-test to test

significance, it is found that there is no statistically

significant difference between the two regression lines with

$\underline{t}$=1.098, p<.05.

Once again we will use the regression equation for FY90,

substitute x=24 months, and forecast forward to determine the Y-

intercept for the first month of FY93. The equation calculates

the intercept at 168,375 outpatient visits, while the actual data

for FY93 shows the Y-intercept at 190,477 visits. The difference

indicates that between these two fiscal years outpatient visits

increased by 22,102 visits despite a negative slope for each year

noted in figure 12. Furthermore, I identified earlier that the

overall population for this patient category decreased over this

period as outlined in figure 13.

Capitation budgeting is shown to have influenced an increase

in the number of outpatient visits over the study period despite
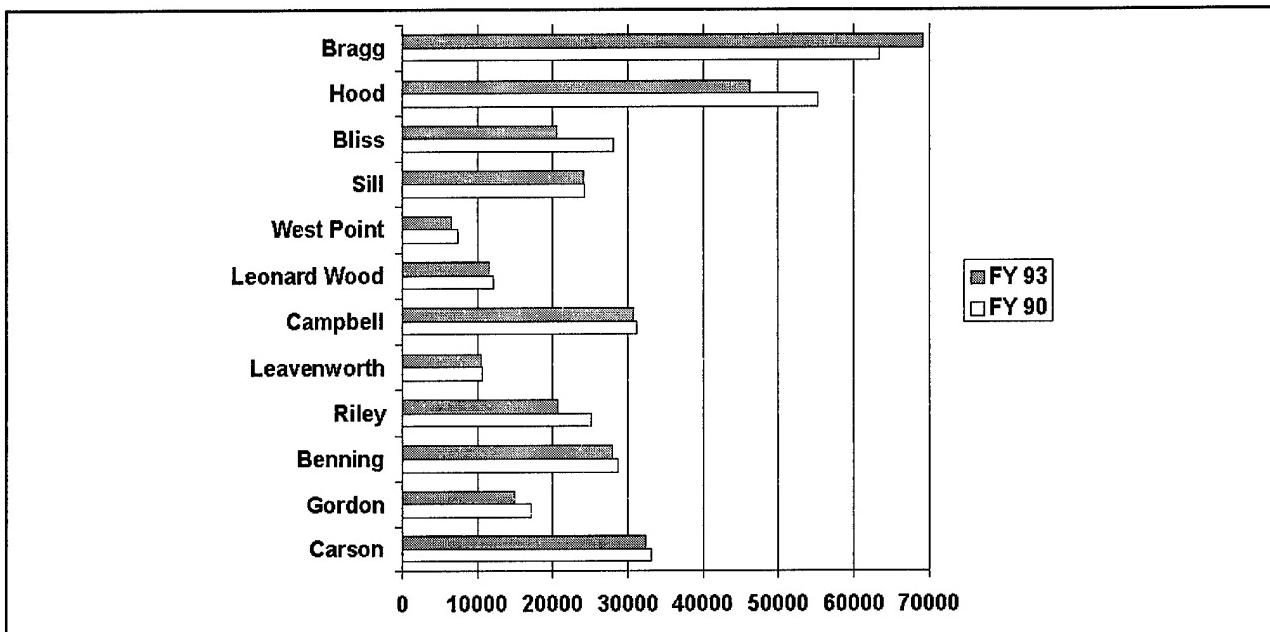
Figure 13.--Population Changes between FY90 and FY93.

a decline in population between fiscal years examined.

Therefore, the alternate hypothesis (HA3) "Capitation budgeting

will result in a shift of patient treatment from the inpatient

setting to the outpatient setting as measured by the number of

outpatient visits" is accepted.

   In summation, all three alternate hypothesis are accepted in

this study indicating that capitation budgeting will influence a

shorter ALOS, an increase in the CMI, and an increase in the

number of OPV's.

CHAPTER 5

DISCUSSION AND IMPLEMENTATION

The results of this study suggest that capitation budgeting does change the behavior of our Medical Treatment Facilities. Through changing the incentives and placing the risk on the commander of the facility, cost containment can occur. However, an important factor to capitation budgeting is the granting of autonomy to allow commanders the flexibility necessary to be successful in an "at risk" environment.

Comparing the outcome of this study to previous studies that examined the prospective payment system of Medicare, the results and variable changes are similar. However, caution must be taken when comparing these two groups because they are not equally incentivised. Medicare is essentially fee-for-service with discounts per episode of care, and minimal provider risk. Capitation is fixed payment for a period of time, regardless of number of episodes of care.

Caution must also be exercised because of age and physical differences between these two categories. For example, the decline in ALOS for Medicare patients was much larger than for dependents of active duty. Several factors could account for this difference such as financial incentives for providers and hospitals, or the fact that younger people heal faster.

Case mix index was also much higher for the Medicare population which would only make sense since elderly people have a tendency to have more severe illnesses than young adults. However, both populations of people experienced the same trends when financial incentives changed toward prospectively fixing the payments. Cost containment techniques and an increase in outpatient treatment came to the forefront.

The outcome of this study may have several contributing factors. First, the Tri-care contracts should include "at risk", capitation budgeting to place the burden of success or failure on the contractor. In doing so, we should expect to see the contractor respond with behavior modifications similar to those outlined in this study. It is incumbent upon the military services to ensure such behavior does not become unreasonable and endanger the patients. The contractor will shorten length of stays, attempt to divert seriously ill patients (maintain a lower CMI), and direct patients to an outpatient setting to ensure a successful financial outcome.

All Army MTF's are now budgeted using the capitation formula. The commanders are at risk for utilizing their resources efficiently. This study will provide information about dependents of active duty that will assist them in determining the behaviors that should result from current budgeting methodology. Several of our MTF's are in the initial stage of making the transitions to working in a capitated environment and should use this study to assist in strategic planning.

This study would also be beneficial to the Medical Command to provide feedback about the success or failure of capitation budgeting. The cybernetic model requires feedback to be successful and this study provides such feedback. In particular, the resource management decision makers would benefit from knowing what changes have occurred as well as the impact these changes may have on the aggregated financial outcome of the command. Furthermore, the Resource Managers may find it necessary to adjust financial programs realigning dollars with requirements.

I recognize that there are several limitation to this study. One such limitation is the focus being on only one patient category. The ability to study all patient categories is impossible because we do not have accurate enough information to complete such a study.

The reliability and validity of this study is limited to the accuracy of the information obtained from the Patient Administration Services Biostatistical Analysis data bases. Information was obtained from the same source as data used daily to make decisions, but that does not guarantee its reliability. This study was limited to three variables, but certainly numerous others could be used to identify other behavioral changes resulting from the incentives realized in capitation budgeting.

Data from the twelve GTC sites used in this study is aggregated and do not identify outlier facilities. Certain facilities such as Medical Centers/teaching facilities may have

ALOS, CMI or OPV's not accurately depicted by this study. My intent was not to identify these outliers, but to look at the results from a "Corporate" aggregated perspective. I did find that Medical Center results were slightly higher in all variables than the aggregated means utilized in my research.

Conclusions of this study are warranted utilizing a retrospective data analysis, non-experimental design. Data collected represents the population of the twelve original GTC sites with inpatient capabilities. Results were obtained using regression analysis for determining regression lines/equations which were forecasted forward and compared to actual regression outcomes.

Future research should focus on expanding the variables to further explore changes as a result of capitation budgeting. For example, examining the number of admissions per 1000 beneficiaries and combining that result with this study would provide information useful for making staffing adjustments from the inpatient setting to the outpatient setting.

Furthermore, a study including all patient categories would provide results beneficial to long term strategic planning for the MEDCOM and MTFs, providing accurate information can be collected for all categories. A study comparing facilities would assist in identifying outliers and allow for assistance to that facility to bring them into line with their sister facilities.

It would be interesting to conduct a study examining resource usage within the MTFs following capitation.

Specifically, examining supply usage and supply cost savings associated with the onset of capitation. This information would be extremely useful in the development of clinical protocols.

Finally, research comparing the number of outpatient visits of the MTF and the number of CHAMPUS (civilian) outpatient visits would allow for comparison of utilization rates. This information would be instrumental in developing a utilization management program to reduce the number of unnecessary visits, and also to prevent "Churning" under our current "non-risk" Tri-care contracts which allow for bid-price adjustments.

The reverse also holds true under capitated contracts. We could send high users of health care to the contractor who would in turn lose money, an outcome that would not result in good contractual relations. Actions of this sort would make it extremely difficult for future contract negotiations and would certainly not result in a win-win outcome for both the contractor and the MEDCOM.

The implication of this study is that behavior modification leading to cost containment can be achieved using capitated budgets. Placing the risk of success or failure upon the person responsible for providing the care results in favorable behavioral outcomes from a financial perspective.

Appendix A.--Explanation of Capitation Formula.

ITEM	EXPLANATION
1	Actual claims in the catchment area from the Catchment Area Billing Report.
2	Fiscal Intermediary cost from the same report.
3	In-house spending of CHAMPUS dollars on approved GTC initiatives.
4	Sum of 1, 2, and 3. Total CHAMPUS
5	Inflation on 4. We used the projected Assistant Secretary of Defense (Health Affairs) inflation rate.
6	Total of 4 and 5.
7	Percentage of total O&M involved in CHAMPUS. Added to 17 equals 100 percent.
8	Total cost of military personnel, assigned and borrowed (excluding dental, vet, and trainers), used during the last year. We use a civilian equivalent cost, not actual MPA cost. See the explanation of the MPA equivalent cost sheet for details.
9	Inflation at legislated rate on the military equivalent cost.
10	Total of 8 and 9.
11	Within the capitated portion of the O&M actual, this is the percentage split between pay and non-pay.
12	These are the dollar amounts of the capitated pay and non-pay. Amounts are taken from previous FY Resource Summary Markup for the current FY.
13	Appropriate inflation factors added to the pay and non-pay accounts. Pay is inflated at legislated pay raise and non-pay is inflated at the Medical CPI.

14   Total of 12 and 13.

15   Third Party Collection Program (TPCP). We spread our PBG third party decrement to each of our activities. This represents the amount withdrew, not the amount collected. That way, if the hospital collects more, it is truly a profit. This is the portion of the budget which is self-generated. Carried over to Block D and down to Block H.

16   Total of 14 and 15.

17   Percentage of total O&M used in in-house operations. Added to 7 equals 100 percent.

18   Total of 4, 8, and 12.

19   Total of 5, 9, and 13.

20   Total of 6, 10, and 16; or total of 18, 19, and 15.

21   This is the end state population size present in the MTF catchment area during the base line year.

22   This is the beginning population size present in the MTF catchment area of the previous year, the base line year (end state population for the previous year).

23   Total of 21 and 22, divided by 2. This is the midpoint population in the catchment area for the base line year.

24   20 (times 1000) divided by 23. Cost per beneficiary served (CPBS); because inflation was added, this CPBS is the base line CPBS expressed in current execution year terms.

25   This is the projected population in the catchment area as of the end of the execution year.

26   25 minus 21. This represents the change in beneficiaries between the end of the base year and the end of the execution year.

27   Half of 26. Since the population changes occur periodically throughout the year, we average the change.

28   Total of 21 and 27. This is the beneficiary count used to mark-up the execution year budget.

29   29 x 24. This is the total capitated budget for the execution year rounded to thousands.

30   Value of the population change. We compute this as the difference between 29 and 20.

31   This is the percentage of core decrement to be taken during the current FY. Percentage to be taken is determined by size and type of activity.

32   31 x the model FY total direct resources (see page 2 of model). The dollar amount of the core decrement for the model year.

33   Total of 29 and 32. This is the revised model year capitated funding. Carried down to Block E.

34   8 adjusted for one-half the projected change in military staffing to occur in the execution year. We apply changes in TDA authorizations to whatever was on-hand in the base line year. The mid-year review gives us a chance to adjust the projection, based on actual change of military that took place.

35   34 minus 10. The change in MPA.

36   35 x (percent at #7). The CHAMPUS share of the MPA change determined by the percentage split identified in the base line year.

37   35 x (percentage at #17). The O&M share of the MPA change determined by the percentage split identified in the base line year.

38   30 x (percentage at #7). The CHAMPUS share of population change determined by the percentage split identified in the base line year.

39   30 x (percentage at #17). The O&M share of the population change determined by the percentage split identified in the base line year.

40   Total of 6, 36, and 38.

41   33 minus 40 minus 34. Total capitated funding less CHAMPUS less MPA equivalent equals O&M portion of the budget.

42   41 minus 15. Removing the self-generated portion (TPCP) of the budget leaves the direct funded O&M portion.

Appendix B.--Summary of Study Hypotheses

VARIABLE	ALT HYPOTHESIS	NULL HYPOTHESIS
ALOS	Capitation Budgeting will decrease the ALOS for in-patients within the GTC facilities	Capitation Budgeting will not decrease ALOS for in patients within the GTC facilities.
CMI	Capitation Budgeting will result in a sicker inpatient population as measured by the average CMI for that population.	Capitation Budgeting will not result in a sicker in-patient population as measured by the average CMI for that population.
OPV's	Capitation Budgeting will result in a shift of patient treatment from the inpatient setting to the outpatient setting as measured by the number of outpatient visits	Capitation Budgeting will not result in a shift of patient treatment from the inpatient setting to the outpatient setting as measured by the number of outpatient visits.

Appendix C.--Original Variables Considered
for Study

VARIABLE	STUDIED
Average Length of Stay	Yes
# of Admissions	No
# of Outpatient Visits	Yes
# of Outpatient Surg.	No
# of Operational Beds	No
Case Mix Index	Yes
# Non-availabilities issued	No
# of Full Time Equivalents	No

REFERENCE LIST

Aaron, H. 1991. Serious and Unstable condition. *The Brookings Institution*. Washington D.C.

Aday, Lu Ann et al. 1993. Evaluating the Medical Care System: Effectiveness, Efficiency, and Equity. Health Administration Press (Ann Arbor, Michigan).

AHA Health Statistics Group. 1994. Key Trends in First Quarter 1994. *Economic Trends* 10(2): 1-11.

Ashby, John L. and Greene, Timothy F. 1993. Implications of a Global Budget for Facility-Based Health Spending. *Inquiry* 30: 362-371.

Badgett, Arthur L. 1990. Catchment area management: A new management process for military health care delivery. *Journal of Ambulatory Care Management* 13(3): 1-6.

Berki, S.E. 1985. DRGs, Incentives, Hospitals, And Physicians. *Health Affairs* 4(4): 70-76.

Cahill, William R. 1994. Director, Program, Analysis and Evaluation Branch. Interviewed by author. Verbal interview. Fort Sam Houston, Tx. 21 Oct. 94.

Crowley, Daniel D. and Steven D. Tough. 1993. Turning Swords into Plowshares: Lessons from the Military Health System. *Journal of American Health Policy* 3(4): 33-36.

Davis, K. et al. 1990. Health care cost containment. *The Johns Hopkins Press*. Baltimore and London.

Debore, Raymond. 1995. Statistician, Program Analyst for PASBA. Interviewed by author. Verbal interview. 25 May 1995.

Detsky, Allan S., et al. 1986. Global Budgeting and the Teaching Hospital in Ontario. *Medical Care* 24(1): 89-94.

Edwards, Arch B. 1981. Capitation Budgeting: An Idea Whose Time Has Come. *Topics in Health Care Financing/Managing in the Era of Limits*. (Aspen Systems Corporation): 1-8.

Enthoven, Alain C. 1993. Why Managed Care Has Failed To Contain Health Costs. *Health Affairs* 12(3): 27-43.

_____. 1993. The History and Principles of Managed Competition.

Health Affairs 12 Supplement: 24-48.

_____. 1989. Effective Management of Competition in the FEHBP. *Health Affairs* 8(3): 33-50.

_____. 1988. Theory and Practice of Managed Competition in Health Care Finance. *1987 Professor Dr. F. de Vries Lectures*. North Holland/American Elsevier.

Eubanks, P. 1991. The class of 1970: making connections with change. *Hospitals* (January 20): 22-29.

Fraser, Irene. 1993. Capitation and Reform: Challenges and Choices for Hospital Leadership. *Hospitals* (April 5):23-25.

Ginsburg, Paul B. 1993. Expenditure Limits and Cost Containment. *Inquiry* 30: 389-399.

Gasin, George J. and Sewell, Benjamin C. 1989. Financial management in ambulatory care: New initiatives for cost containment in the military health care system. *Journal of Ambulatory Care Management* 12(2): 87-92.

Hadley, Jack, et al. 1989. Profits and Fiscal Pressure in the Prospective Payment System: Their Impacts on Hospitals. *Inquiry* 26: 354-365.

Hatten, James M. and Connerton, Rose F. 1986. Urban and rural hospitals: How do they differ? *Health Care Financing Review* 8(2): 77-85.

Howland, Daphne. 1993. Managed competition: CBO is wary. *Trustee* (April): 7.

Hsiao, William C. 1992. Comparing Health Care Systems: What Nations Can Learn From One Another. *Journal of Health Politics, Policy and Law* 17(4): 613-635.

Jones, K. 1990. Feasibility analysis of Preferred Provider Organizations. *Journal of Nursing Administration* 20(2): 28-33.

Kenkel, Paul J. 1991. Vying for control of CHAMPUS funds. *Modern Healthcare* 21(14): 40-41.

_____. 1992. High utilization rate offsets efficiencies in pilot military mental healthcare program. *Modern Healthcare* 22(10): 32-3.

Kiyokawa, Guy, et al. 1994. Catchment Area Management Demonstration: Fort Carson. U.S. Army-Baylor University Term Paper for Alternative Delivery Systems.

Latta, Viola B. and Helbing, Charles. 1991. Medicare short-stay hospital services by diagnosis-related groups. *Health Care Financing Review* 12(4): 105-110.

Lave, Judith R. 1989. The Effect of the Medicare Prospective Payment System. *Annual Review of Public Health* 10: 141-161.

Lopez, Mary Sullivan. 1987. Will Cost-Sharing Improve the Military Health Care Delivery System? *Military Medicine* 152(5): 244-51.

Lutz, Sandy. 1994. Index show rising hospital strength. *Modern Healthcare*. (February): 46.

Martin, Edward. 1993. Preparing the Military Health Services System (MHSS) for Capitation-based Resource Allocation. Memorandum to Service Secretaries dated 23 Jul 1993.

Newmann, Bruce R., Suver, James D., and Zelman, William N. 1993. Budgeting. *Financial Management: Concepts and Applications for Health Care Providers*. (Dubuque, Iowa: Kendell/Hunt Publishing Company, 1993): 279.

Packer, Judy. 1991. VA, Defense paying more for drugs-GAO. *Modern Healthcare* 21(38): 16.

Penner, Jerome. 1992. A study to determine the effectiveness of the Catchment Area Management project at Evans Community Hospital to contain health care costs. Graduate Management Project, Baylor University.

Rogal, Deborah L. 1993. Managing the Health Care System Under a Global Expenditure Limit: A Workshop Summary. *Inquiry* 30: 318-322.

Salmon, J. et al. 1990. The futures of physicians: agency and autonomy reconsidered. *Theoretical Medicine* 11: 261-74.

Santos, Alfred G., et al. 1993. A Case Study of a Coordinated Care Program: Development and Implementation of Fort Sill's Catchment Area Management Project. *Military Medicine* 158(5): 299-303.

Sheps, Sam B., et al. 1991. Utilization Management: A Literature Review for Canadian Health Care Administrators. *Healthcare Management Forum* 4(1): 34-9.

Shouldice, Robert G. 1991. Introduction to Managed Care. *Virginia: Information Resources Press*.

Sigmond, Robert. 1994. Capitation: It's older than you think. *Trustee* (August): 16-17.

Starr, P. 1982. The social transformation of American medicine.

Basic Books Inc., Publishers New York.

Terris, Milton. 1991. Global Budgeting and the Control of Hospital Costs. *Journal of Public Health Policy* 12(1): 61-71.

U.S. Department of the Army Health Services Command Mercury. 1992. *Orientation Issue, HSC Mercury*: 1-23.

_____. 1989. Regiment plans anniversary party. *HSC Mercury*: Page unknown.

Weissenstein, Eric. 1992. GAO wades into power struggle over military managed-care plan. *Modern Healthcare* 22(16): 22.

_____. 1992. Defense Dept. starts payment program. *Modern Healthcare* 22(45): 24.

_____. 1993. Military Health Plans Eyed. *Modern Healthcare* 23(30):4.

_____. 1994. Hospital sets Maryland's first capitation deal. *Modern Healthcare* (April, 11): 33.

_____. 1994. Pentagon alters CHAMPUS program. *Modern Healthcare* (April, 11): 32.

Weller, C. D. 1984. Free choice as a Restraint of Trade in American Health Care Delivery and Insurance. *Iowa Law Review* (July):1351-92.